

amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



VOL. 48, No. 2

FEBRUARY 1980

FEATURED IN THIS ISSUE:

- ★ 1979 RD CONTEST RESULTS
- ★ Review: KENWOOD R1000 GENERAL COVERAGE RECEIVER
- ★ Review: YAESU FT207R SYNTHESISED 2m HAND-HELD
- ★ THE WEE WILLIE WONDER ANTENNA COUPLER
- ★ AN 80 METRE VERTICAL

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Cooling Fan: For the 101Z (or replacement on 901).	CatD-2865	\$39.00

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Cover Photo

AMATEUR RADIO ASSISTS RUNNERS

The "Sun" City to Surf Race held in Syd-
ney during August 1979 attracted some
21,000 runners. Amateur Radio provided
communications consisting of a radio link in
the lead vehicle, numerous check-
points along the route and portable man-
pack links. Eric Van de Weyer VK2ZUR
seen here relaying a message for a race
official at Bondi Beach, the race finish.

2 metres FM via a repeater was used as
the primary system with a HF network

back-up. The lead vehicle relayed up to
the minute positions of the front runners.
Numerous fixed check-points provided in-
formation for medical assistance to
exhausted runners. This is the second year
that Amateur Radio has provided com-
munications and it has proved to be a
worthwhile contribution, bringing to the
attention of the public what Amateur Radio
can do.

Photo: VK2ATU

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Broadcasts: 3570 kHz and 2m Ch. 6 (or 7): 10.00Z.

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Secretary: Mr. T. I. Mills VK2ZTM

Broadcasts: 1825, 3385, 7145 kHz, 28.32, 52.1,

52.525, 144.1, 148.6, 168.4, Rptr. Ch. 3 — Gosford, Ch. 4 — Lismore, Ch. 5

Wollongong, Ch. 8 — Dural 11.00h local (Evening 0930Z); Relays on 160,

80 and 10m, VHF and UHF. Ch. 3, Ch. 5, Ch. 8, and Hunter Branch, Mondays 0930Z on 3585 kHz, 10m,

and Ch. 3 and 8. RTTY Sunday 0030Z

7045, 14040 kHz, Ch. 52, 0930Z-3545

kHz, Ch. 52.

VIC.:

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Broadcasts: 1840, 3600, 7135 kHz — 53.032 AM,

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10.30 local time.

Gen. Mtg. — 2nd Wed., 20.00.

QLD.:

President: Mr. A. J. Aarsse VK4QAA

Secretary: Mr. W. L. Glazier VK4AIG

Broadcasts: 1825, 3580, 7145, 21175, 28400,

MHz; 2m (Ch. 42, 46): 09.00 EST.

Gen. Mtg. — 3rd Friday.

SA:

President: Mr. I. J. Hunt VK5QX

Secretary: Mr. W. M. Wardrop VK5AWM

Broadcasts: 2860, 7075, 14100, 14175 MHz; 28.485,

52.200 MHz; 2 meters Ch. 2 Perth, Ch.

Wagga. Time 0130Z.

Gen. Mtg. — 4th Tuesday, 19.30.

WA:

President: Mr. Ross Greenaway VK6EDA.

Secretary: Mr. Peter Savage VK6NSC

Broadcasts: 2860, 7075, 14100, 14175 MHz; 28.485,

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Wagga. Time 0130Z.

Gen. Mtg. — 3rd Tuesday.

TAS.:

President: Mr. I. Nicholls VK7ZZ

Secretary: Mr. P. T. Blaha VK7ZPB

Broadcasts: 7130 (AM) kHz with relays on 2m

Ch. 2 (5), Ch. 8 (9), Ch. 3 (9W).

09.30 EST.

NT:

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Secretary: Robert Millikan VK8HMR

Broadcasts: Relay of VK5WI on 3.555 MHz and on

146.5 MHz at 2320Z. Slow Morse

transmission by VK8HA on 3.555 MHz

at 1000Z almost every day.

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43 5795 Tues & Thurs (10.00-14.00h).

P.O. Box 123, St. Leonards, NSW 2065.

VK3 — 412 Brunswick St., Fitzroy, 3065 (Ph. (03)

41 3555 Weekdays 10.00-15.00h).

VK4 — G.P.O. Box 638, Brisbane, 4001.

VK5 — G.P.O. Box 1234, Adelaide, 5001 — HQ of

West Australian Rd. Thebarton.

VK6 — G.P.O. Box N102, Perth, 6001.

VK7 — P.O. Box 1010, Launceston, 7250.

VK8 — (Incl. with VK5) Darwin At Club, P.O. Box

37317, Winnellie, N.T., 0769.

Slow morse transmissions — most week-day evenings about 09.30Z onwards around 3550 kHz.

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VK8 — QSL Bureau, C/- VK8HMA, P.O. Box 1418, Darwin, N.T. 0769.

VK8, — Federal QSL Bureau, Mr. N. R. Penfold VK8NNE, 388 Hanbury Rd., Woodlands, W.A. 6018.

After all those years of preparation it is now time to look back on the results of WARC 79.

Results that have given the amateur service three new high frequency bands and access to many more bands by the amateur satellite service.

These results did not just happen, they were the result of a co-ordinated and concerted effort.

After the 1959 conference, John Moyne made a few very pertinent comments in his article in AR of March 1960 about the future of amateur radio in its relationship with and preparation for ITU conferences. Those lessons of 1959 were well learnt.

Firstly, our WARC 79 ground work preparation started many years before the conference with the development of an international amateur radio position formulated by the representatives of amateur radio societies in each of the three ITU regions.

This position, having been refined, was then presented to many administrations thus indicating a consistent amateur requirement. There was also an effective international organisation providing the back-up for national societies.

In Australia there was amateur participation from the very beginning of the Australian Government preparation for WARC 79. The importance and value of membership of the national delegation cannot be over-emphasised.

In view of the complexity of the WARC agenda the ability to have two amateur representatives on the Australian delegation was a godsend; particularly as there were many simultaneous working group meetings discussing amateur matters.

It was in these working group meetings that the decisions were made and delegates had the opportunity of putting their cases in order to influence these decisions.

Every stage in the WIA preparation for WARC 79 on behalf of Australian amateurs was vitally essential: None could have been bypassed —

- The preliminary preparation;
- The complete participation in the Australian preparatory group;
- The attendance at preliminary ITU meetings particularly the special preparatory meetings of the CCIR culminating in the acceptance of two members on the Australian delegation.

Notwithstanding the heavy cost in time and money, all this has proved to have been well worthwhile in results obtained.

D. A. WARDLAW,
Federal President.

QSP —
WARC
79
IN
RETROSPECT

WIANEWS

6 METRE BAND

The text of the latest letter from the P. and T. Department reads: "Reference is made to your letter of the 12 October and 7 November 1979 concerning use of the 50-52 MHz band in Australia by the Amateur Service.

"The use of this portion of an Australian Television band outside of normal viewing hours is presently studied following the recent decisions made at the World Administrative Radio Conference.

"It is therefore considered that the appropriate time for the discussions you have requested will be after clear guidelines are established".

This question is being pursued as urgently as possible, especially as Melbourne's TV Channel 0 will move to Channel 10 near the end of January.

INTRUDER WATCH

Alt Chandler VK3LIC, the Federal Intruder Watch Co-ordinator, having relinquished this post at the end of 1979, has handed over to Graham Fuller VK3NXL and this has been confirmed. Graham's address is P.O. Box 156, Healesville, Vic. 3777.

OFFICE

As shown in January AR the Executive office news address was notified. The telephone number is (03) 598 5962. The postal address is unchanged.

1980 FEDERAL CONVENTION AGENDA ITEMS

Item 80.121 from VK6 reads:

"That the P. and T. Department be requested to include on the application for an amateur station licence the right to suppress publication of the licensee's name and address from the Australian Call Book".

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VK6ZGY	1.50
VK6WV	2.20
VK3BFQ	10.00

QSP

JANUARY AR

In the hiatus caused by holidays the quantity received of the January issue was a little short unfortunately. A few people near the end of the labels missed out in the mailing. The missing copies will be sent out as soon as possible after the printers return from the annual shut-down. ■

WILLY WILLIES WEE WONDER —

SIMPLE ANTENNA COUPLER

M. N. O'Burnill VK3WW
3 Maxwell Street, Leichhardt

A simple and effective antenna coupling unit for the novice and low power operator.

Like most operators I like to explore new fields and of necessity have to adapt equipment to particular needs. In this case it was portable operation from my caravan using an FT7 with a helical antenna and a Marconi 300 ohm ribbon antenna.

I soon decided that an aerial coupling unit was needed. The design, apart from electrical considerations, demanded that the unit be physically small, easy to tune and calibrate and be inexpensive. As the FT7 is a lower power rig, small tuning capacitors could be used.

I chose the Robian single gang broadcast tuning capacitor which retails for about \$5 each. I had on hand a Toroid core, which was red and marked G 29SW479 U142. This core measures 20 mm outside diameter, 13 mm inside diameter and 6 mm deep. I think any toroid of about this size which is capable of working in the range 3 to 30 megahertz would be suitable. The Neosid type part No. 28-023-34 should be suitable also.

Winding the coil on a small toroid can be difficult, particularly when it comes to making taps every 3 turn. My method in this case was to wind on 3 turns of 20 gauge wire and leave a half inch lead on each end. I then removed this winding and straightened it out, next I cut 9 other pieces of wire of exactly the same length. Clean the enamel for half an inch on each end of each wire and carefully tin each end. Now wind 3 turns with the half inch ends pointing across the toroid. Wind another 3 turns and lightly solder one end of the first coil to the start of the second coil, continue like this until you have 30 turns wound round the toroid. Spread or compress the turns so that the coil is fairly evenly spaced around the toroid.

Now starting at the first tap, unsolder the join and twist the half inch ends together to make a good mechanical join and then resolder. Repeat this process at each tap point and leave the two ends of the coil free.

Carefully solder each tap point to the ten position switch. You will find that this method holds the coil quite rigidly and no further mounting is required. The earth end of the coil is connected to a convenient chassis point using as short a lead as possible. The tuning capacitors are in series with the antenna and therefore are at RF potential. It is essential that they

be completely insulated from the chassis and that insulated knobs be used. A scrap of perspex sheet is a good insulator in this case. I mounted the capacitors on a piece of perspex then laid another piece under this and bolted the lot to the chassis. Of course the holes in the front plate through which the capacitor tuning shafts pass must be large enough to avoid the possibility of the shafts touching the metal plate. Likewise do not mount the capacitors too close to the front plate, the shaft is long enough to allow this.

TUNING UP

From the circuit, Fig. 1, you will note that I have included a switch to allow direct feed. This is handy for testing the effectiveness of the aerial coupling unit. Hook up the rig, SWR meter and aerial coupling unit as in Fig. 2 and tune in the signal with the aerial coupling unit switched out (direct feed). Note the S metre reading and switch the coupling unit in. Set C1 and C2 to maximum capacity and L1 to maximum inductance.

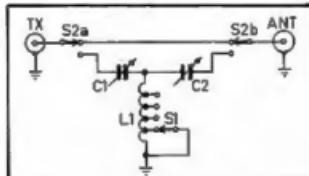


FIG. 1: Circuit diagram C1 and C2 Robian 10-415 pF single gang. S1-10 position rotary switch. S2-DPT switch. L1 — 30 turns tapped every 3 turns on ferrite toroid. Neosid Part No. 28-023-34 or similar.

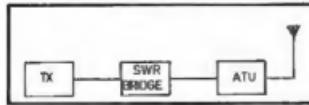
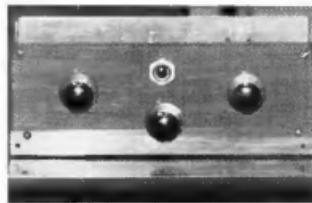


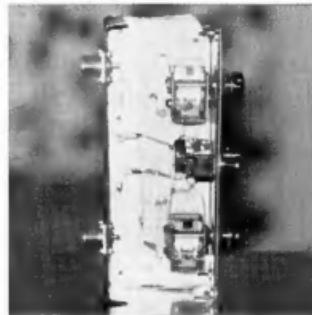
FIG. 2: Block diagram of coupler in use

Switch the taps on L1 and see if you get an increase in received signal. Now tune C1 and C2 alternately to peak the signal and note the settings of L1, C1 and C2. Switch the coupler out and apply power from the transmitter and note the SWR reading. Of course you should tune clear of the received signal a few kilohertz so that you don't cause interference. Now switch the coupler back into circuit and note the SWR reading.

At this stage I should explain that you don't always get a really good indication



The completed unit



Inside view

on received signals. If the SWR is too high or not improved from direct feed, switch the coil one tap each side of its present setting. What you are looking for is a drop in reflected power and an increase in forward power. A twin meter bridge is very useful in this situation. The meter indications are quite dramatic and show clearly when the correct tap is found. After this, alternately adjust C1 and C2 to obtain maximum forward and minimum reflected power. You should be able to achieve virtually one to one SWR on any reasonable antenna.

Once you have found the correct settings for an antenna on one band make a note of them, as they will be a good starting point for that band on any other antenna.

WHAT ABOUT HIGHER POWER?

Yes this circuit will work with higher powered rigs. Larger capacitors must be used, that is ones with greater plate spacing, and to avoid excessive heat loss a larger toroid is recommended. I am indebted to Charlie VK3BIT for bringing this circuit to my notice. It really works well, is easy and cheap to build and with low power rigs can be quite a small size which will fit in anywhere. ■



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EQUIPMENT REVIEW:

THE KENWOOD R1000 GENERAL COVERAGE RECEIVER

Ron Fisher VK3OM

Trio Kenwood have a long history in the manufacture of general coverage receivers. Many hundreds of 9RS9D/DE and DS's are still in use. The later R300 series did not reach the popularity of the earlier receivers. It seems now that Kenwood have produced a receiver that could lead the field for some time to come.

The R1000 is a fully solid state general coverage communications receiver with all required facilities but at the same time offering simple operation. It is obviously aimed at short wave listeners and at the growing market of people interested in overseas reception to keep up with current affairs. It is also the in-thing for amateur operators to have a general coverage receiver handy.

CIRCUITRY AND TECHNICAL DESCRIPTION

The R1000 tunes from 200 kHz to 30 MHz in thirty bands each one MHz wide. An analog dial with 10 kHz calibration divisions is supplemented with a LED digital readout with one kHz resolution. This readout is also switchable to a crystal controlled clock with facilities for preset switching on and off both the receiver and auxiliary equipment such as a cassette recorder. Selectivity is taken care of with three Murata ceramic filters. These provide for wide AM, 12 kHz, narrow AM, 6 kHz and SSB with 2.7 kHz selectivity. A first for this type of receiver is the inclusion of a noise blower. Other features include an RF attenuator for the receiver front end, a dimmer switch for both the digital display and S meter illumination and an audio tone control.

The R1000 is the first receiver of its type to get away from the Wedley Loop principle and yet still have the advantages of this type of operation. The PLL synthesizer provides a heterodyne signal to the first mixer to up-convert to 48.0 MHz. The second mixer converts to 455 kHz and this is also fed from the synthesizer. Both first and second mixers are balanced. The synthesizer output is also used to switch in appropriate band pass filters for the receiver front end. This of course eliminates the need for separate front end tuning and the need to follow main tuning with the preselector to maintain sensitivity. As if

this was not enough, the synthesizer also drives the digital readout.

The R1000 has a built-in AC power supply designed to operate from 100 to 234V. There is no provision for any in-built battery supply — but a DC connector allows for externally supplied 12 volt DC operation.

APPEARANCE AND IMPRESSIONS

Kenwood have carried through the general appearance of the 120 series transceivers to the R1000, although the front panel dimensions are slightly larger and the cabinet depth slightly less. The R1000 weighs in at 5.5 kg. Overall the appearance would have to be rated as very good and the only criticism possible is the analog dial and 'S' meter. The faces of both are completely opaque and finished in a bright silver. The calibration points are rear illuminated in bright green, but under conditions of high ambient light, reflection from the silver makes the dial and 'S' meter hard to read. With low external light both are very legible.

Controls are in general easy to use. The only exception to this is the tone control which is concentric and to the rear of the volume control. As its diameter is only slightly larger than the volume control it is hard to operate. Perhaps the next model will have a small lever extending from it to help.

The unusual carry handle seems to be either liked or completely disliked, however it does serve a useful dual purpose. As well as being a carry handle it also acts as a variable tilt angle support for the receiver when installed on a desk.

Another feature is the rear panel. This is recessed and set at an upward facing angle, and allows connections to be changed easily with the set in situ. Connections can also be routed into the back panel with the set pushed hard against a wall.



PHOTO 1: Good appearance — the R1000 and a TS820S

THE R1000 IN USE

For comparative tests we set up the R1000 alongside a TS820S, with a two position coax switch to feed both from the same antenna. The antenna for low frequency reception was at first a parallel connected 80 metre dipole. It was soon obvious that this was a bit too much. Even with the RF attenuator at the 40 dB point there was quite a bit of cross modulation. We finished up with about 10 metres of wire stretched out on the floor and this gave excellent broadcast and long wave reception. Aircraft NDBs were audible at good strength over distances of 100 km or so. Quality of broadcast reception was outstanding. With a Hi-Fi speaker plugged into the extension speaker output, the high frequency response was superior to my AM/FM Hi-Fi outfit. This was of course using the wide AM mode of the R1000.

However, over to the short wave bands and naturally the first part we checked were the amateur bands. Anything audible on the 820 was equal in every way on the R1000. It was only under the most difficult QRM conditions that the superior selectivity of the 820 made a slight difference. But mark this, the difference was slight and this applied to all bands including ten. The turning rate, although somewhat faster than the TS820S was still good at

50 kHz per knob revolution and a very smooth dial drive made tuning of SSB easy. It should also be noted that SSB resolution is made considerably easier with the 2.7 kHz bandpass as compared with receivers with similar tuning rates but wider selectivity. The calibration of the digital readout proved to be quite accurate in the AM mode and a plus or minus one kilohertz error on SSB depending on the sideband selected. One of the highly rated points of the R1000 is the noise blanker, however we found its action rather disappointing. In fairness, it was no worse than the blanker in the 820S but I have never considered that one very good either. It did reduce ignition noise to some extent and appeared more effective on the higher frequencies above 20 MHz.

The quartz controlled clock was extremely accurate for the duration of our test. It is of course independent of the mains, so that even when the R1000 is run from a battery supply the clock will still operate. On a personal point, I would have preferred a 24 hour type to the 12 hour one. AM and PM indicators however overcome this to some extent.

Output to a cassette recorder is made via a 3.5 mm phone socket and audio level proved excellent for the aux. socket on my AIWA recorder. This output is at a constant level and is not affected by

the setting of either the volume or tone control.

While on the subject of the tone control, I thought that its effect was too small and more top cut would have been useful in many cases.

However, most criticism would have to be mild in view of the overall superb performance of the receiver. The R1000 is well ahead of any other comparable receiver on the market at the present time.

Overall stability proved most impressive with total drift not exceeding one kilohertz over several hours of operation.

INSTRUCTION BOOK

The receiver tested was an early sample and did not come with an instruction book and in fact it was to be several weeks before one came to hand. When it did, I was delighted until I opened it and found not one, but several instruction books all in different languages. This means that instead of one large (at first sight) book, there is one rather small book. The information contained is completely directed at a non-technical user. Apart from the block diagram and the circuit diagram there is no technical description at all.

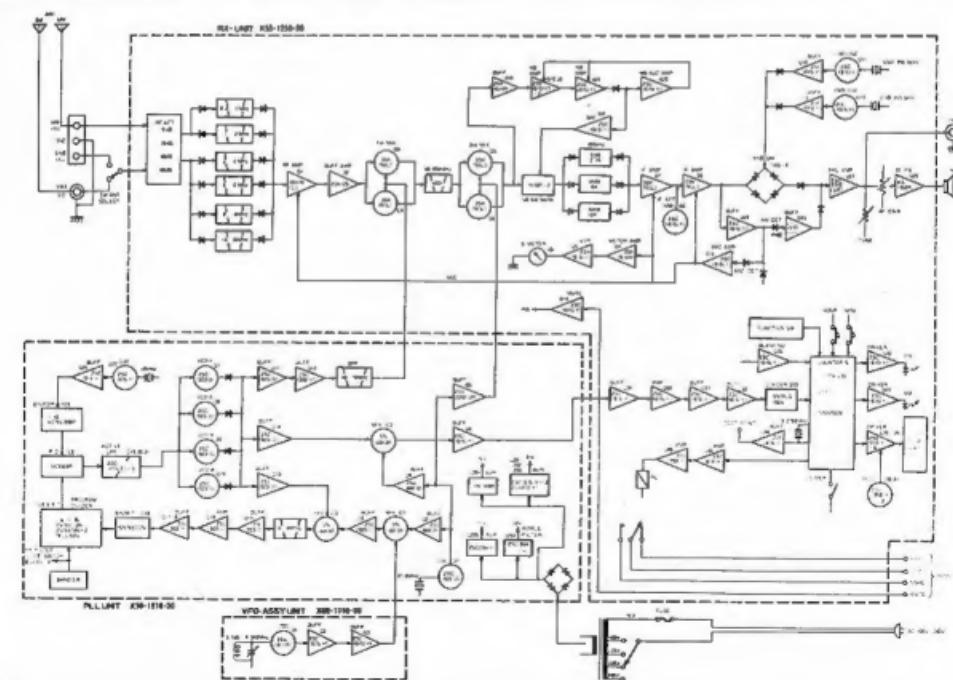
It seems a pity in this age when equipment is getting better all the time, general instruction books are steadily getting worse.



PHOTO 2: Rear view of the R1000. Note easy access to connections.

In conclusion, I am collecting all the old bottles I can find to rouse up a down payment on an R1000. Our test model was supplied by VICOM International of Melbourne and all enquiries regarding price and delivery should be directed to them. ■

FIGURE 1 (below): Schematic diagram of the R1000. Of special interest is the PLL synthesiser unit.



CHIRNSIDE ELECTRONICS



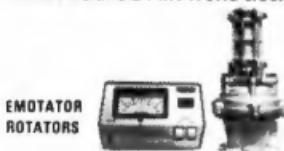
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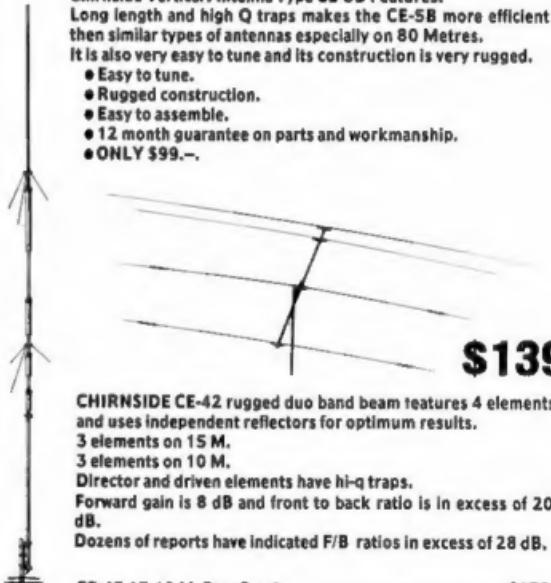
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EQUIPMENT REVIEW:

THE YAESU FT-207R

Ron Fisher VK3OM

It is often said that good things come in small packages. The new Yaesu FT-207R is a hand held two metre FM transceiver and even for one used to using hand held equipment the 207R would have to be rated as very small. When it is considered just what this rig will do, the whole thing becomes quite remarkable. However, back to the beginning.



Two metre hand held transceivers go back quite a few years in the history of FM in Australia, but strangely cover only a very few models. Yaesu were rather late into the hand held field with the FT-202R announced a year or so ago. I am not certain if any of these were actually imported into Australia. These were six channel devices of apparently conventional electrical design with normal crystal control. Transmitter output was rated at one watt. The new FT-207R uses the same case but from there on, apart from the fact that they both operate in the two metre band there is very little in common. The FT-207R has more electronics built into its 88 x 181 x 54 mm case than almost any other mobile size package. Lets look at what it offers

It has full microprocessor control with keyboard dial up frequency control. It covers the entire two metre band in ten kilohertz steps with a switch selected 5 kHz upshift. Four memory frequencies can be entered via the keyboard and scanning of either the four memories or the entire band is available with the scan stepping on either a busy or clear channel. Operating frequency is indicated with a LED readout and of course the usual 600 kHz offset for repeater operation can be selected with the function switch. In addition any other desired offset can be programmed into the system. Once a memory is programmed it is held even if the transceiver is switched off, for as long as the in-built nicad battery retains its charge. As the memory uses about 5 milliamps, this is limited to about 80 hours assuming no actual operation of the transceiver.

Transmitter output is rated at a generous 25 watts and on test actually produced just over three watts.

The FT-207R as supplied for test was complete with a nicad charger/AC adapter, external microphone/speaker, flexible antenna and adaptor to charge the battery when removed from the transceiver.

At least some of these are optional extras and it would be well to contact the distributors for all-up prices.

An interesting point is that the nicad battery is rated at 10.5 volts and the manual states that the transceiver should not be operated on a voltage in excess of exactly 12 volts. It would seem therefore that operation should not be attempted from a standard 12 volt car system which would rise to about 14 volts. Strangely, Yaesu do not have any sort of adaptor or regulator for such operation.

CIRCUIT DESCRIPTION

As could be imagined the little box contains a large number of semiconductor devices. There are in fact 31 transistors, 5 FETs, 10 ICs, 35 diodes plus 2 LEDs and a LED display. The receiver circuit is a standard double conversion with 10.7 MHz and 455 kHz IFs. However it comes as a surprise to find bipolar transistors in the RF and first mixer stages, but in practice sensitivity was first class.

The transmitter starts off at 10.7 MHz and is mixed directly with the 133.3 to 137.3 MHz output of the synthesized frequency control to produce the 144 to 146 MHz output. This same synthesized output is also injected into the receiver first mixer to convert the two metre signals to the first 10.7 MHz receive IF. Reference to the block diagram indicates the operation of the synthesizer and its control from the 4 bit microprocessor chip. An interesting point is that when the VCO is in an unlocked condition, voltage is removed from both the transmitter and receiver and the frequency display indicates 'E' for error condition. Transmitter output is switchable from the nominal 2.5 watts down to 200 mW simply by inserting a resistor in series with the voltage supply to the final and driver stages.

Diode switching is employed for transmit receive changeover which allows for normal push to talk operation with the external microphone. A microswitch is employed in the PTT switch on the transceiver which gives very positive and light control.

PHOTO 1: Front view of the FT-207R

THE YAESU FT-207R ON AIR

This is one transceiver where it is absolutely necessary to read the instruction manual before trying to go on the air.

The transceiver was used in turn by four experienced amateurs and all found that the set had unexplained "faults". However the fault turned out to be the operators' and not of the set. In each case the manual had not been fully digested. But back to the start with a look at the controls and their functions. The top panel has the volume/on/off, squelch, mode switch for simplex or repeater operation, a 3.5 mm socket for external earphone or speaker, a BNC antenna connector and a multi pin miniature connector for the external microphone/speaker unit. On the front of the set is the frequency selection keyboard, the LED frequency readout, the two LEDs to indicate transmit condition and incoming receive signal. Three miniature slide switches select the 5 kHz up condition, frequency display off and keyboard lock. The two latter require some additional explanation. The display off switches the display off once a frequency has been selected after a three second delay. If a new frequency is dialled up the display operates again for three seconds. While scanning the display operates and switches off three seconds after scanning stops. The keyboard lock switch retains the dialled frequency even if a new one is dialled up either accidentally or purposely.

The remaining control, the transmitter power selector switch is mounted on the bottom of the case. Rather badly placed, not from an operational point of view but the set will not sit firmly when placed on a flat surface. Four small rubber pads would fix this and at the same time protect the table top from scratching.

All operators testing the 207R found that small fingers would have been a decided advantage. Also good eyesight is handy to read the control designations. It's not a rig to use on a dark night unless you take a torch along. First few times the transceiver was operated without the external mike/speaker and transmit quality was clean but somewhat woofy in quality. It also appeared to have excess mike gain. Plugging in the external mike unit fixed all of these problems which indicates that the user would need to set the internal mike gain to suit either the internal or the external mike — one setting will not suit both. Another interesting point with the external mike/speaker unit is that when in use, the internal mike is muted but the internal speaker isn't.

Transmit capability with the flexible antenna was about as good (or bad) as other sets tested using these antennas. The radiation efficiency of stubby antennas seems dependent on just how much metal is under them to provide a ground plane, and most of these small transceivers just are not big enough. If you want to get out even into the local repeater a better antenna is needed.

Received sensitivity when checked against a selection of 2m FM units was as good and in fact the mute opened easily on very weak signals that would not open the mute on some of the others. The selectivity is designed for narrow band operation and the local channel eight repeater which tends to have rather wide deviation sounded somewhat distorted, however most local simplex signals were clean.

To get full use of all the keyboard facilities takes quite a bit of practice, hence my earlier remarks on unexplained "faults". It was discovered that changing the mode switch while the set was switched off produced some odd and unexpected results. This is covered in the instruction book, we just hadn't read it. The scanning position will either scan the whole band or the four memories. It is also possible to listen on one frequency and monitor a second frequency on a one second in five basis — very handy to listen to the local repeater while waiting for a friend to show up on simplex. The display shows the operating frequency at all times, so that if a transmit repeat offset is selected, the readout will show the transmit frequency. Many synthesized transceivers with digital readout do not have this feature and continue to display the receive frequency when actually transmitting 600 kHz away.

The FT-207R was supplied with the optional NC-2 quick charger/AC adapter.

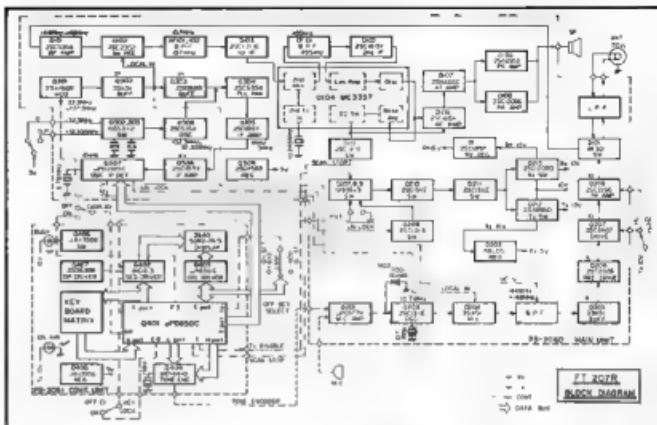


FIGURE 1 (above): Schematic diagram for the FT207R.



PHOTO 2: The unit complete with speaker/microphone, NC2 quick charger/AC supply and antenna.

The transceiver plugs into this either for quick battery charge in as little as three hours, or can be used to power the transceiver for base station use. In the charge mode, the initial charging rate is 450 milliamps which is automatically reduced to a pulsed 45 milliamps as the state of charge

ANSWER

This came as quite a surprise as it is much smaller than the usual Yaesu manual (but then so is the transceiver). Its 40 pages cover operation, circuit description and basic maintenance and alignment. A full circuit diagram is included as well as a complete parts list. Several photos show

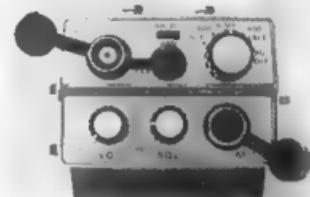


PHOTO 3: Control functions on the unit

the position of the main components and adjustment points. The book covers all needed points and is well written.

CONCLUSIONS

This little rig is superbly constructed and finished but where does it fit into the scheme of things? Well, if you travel either interstate or overseas and you need a rig with all facilities that will fit into a small overnight bag and still room for a, the other things you need to take, then the FT 207 is for you. It would also make a wonderful toy for the amateur who "has everything". Beyond this, I am not sure. If you decide to buy one, drop a note to AR and let us know what your application for this rig is.

The FT-207R and NC-2 used in our review was supplied to us by Baile Electronics of Box Hill, Victoria, to whom all enquiries of price and delivery should be directed. ■

Technical Articles Always Needed

CALCULATION OF GREAT CIRCLE DISTANCES

C. K. Maude VK3ZOK
2 Clarendon St., Avondale Heights 3034

Over many years radio amateurs and others have tried to calculate the distance between two known points on the earth's surface using mathematical tables or slide rules. These methods can be quite time consuming and frustrating.

The basic equation used is

$$D = \arccos (\sin(\text{lat I}) \times \sin(\text{lat II}) + \cos(\text{lat I}) \times \cos(\text{lat II}) \times \cos(\text{lon I} - \text{lon II})) \cdot M$$

where —

Lat I is the latitude of the first point and
Lon I is the longitude of the first point and
Lat II is the latitude of the second point and
Lon II is the longitude of the second point,
all of these being in decimal degrees,
and where M is the multiplier for kilo-
metres, miles or nautical miles.

For those having scientific calculators,
one of the programmes shown here can be
used. There are programmes for fully
programmable types and simple models,
for reverse polish notation and for alge-
braic modes.

The only information that is required to
obtain the great circle distance between
any two points is the latitude and longi-
tude of both points in degrees, minutes
and seconds. The latitudes and longitudes
must first be converted to degrees and
decimals, remembering that 60 seconds
make one minute and 60 minutes make
one degree. Answers can be calculated in
kilometres, miles, or nautical miles by
using the appropriate value of M as
shown.

For Kilometres use $M = 111.12$
For Miles (statute) 68.047
For Miles (nautical) 60.00

NOTE:

When longitudes are East change the
sign to -ve.

When latitudes are South change sign
to -ve.

If both are East or both are South no
change is necessary.

Example:

Melbourne Airport: Lat 37°40'30", Long
144°50'32".

Launceston Airport: Lat 41°32'45", Long
147°12'49".

Lat I = 37.675, Lon I = 144.842.
Lat I = 41.547, Lon II = 147.214.
Distance: 475.72 km, 295.6 miles, 256.67
nautical miles.

Note that if only degrees and minutes
are used the accuracy is still better than
0.6 per cent for this example.

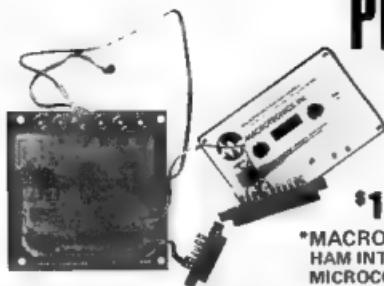
LISTING OF PROGRAMMES

CALCULATOR TYPE				
	RPN		Algebraic	
Step	HP45, HP35, HP55, etc.	Novus 3500, NS 4510	With store — T159, etc.	With brackets — T125, etc.
1	Clear all functions	Clear all functions.	Clear all functions.	Clear all functions.
2	lon I ENTER	lon I ENTER	lon I —	lon I —
3	lon II —	lon II —	lon II =	lon II =
4	COS	COS	COS X	COS X
5	lat I COS X	lat I COS X	lat I COS X	lat I COS X
6	lat II COS X	lat II COS X	lat I COS =	lat I COS =
7	lat I SIN	STO CLR	STO CLR	+ (
8	lat II SIN X	lat I SIN	lat I SIN X	lat I SIN X
9	+	lat II SIN X	lat II SIN	lat I SIN
10	ARC X COS or COS ⁻¹	RCL +	= + RCL =) =
11	M X	ARC COS or COS ⁻¹	ARC COS or COS ⁻¹	ARC COS or COS ⁻¹
12	Answer	M X	X	X
13		Answer	M =	M =
			Answer	Answer

Calculator function and operation keys are shown in bold type.

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grams are written in BASIC with machine language subroutines. Each requires 8K bytes of RAM. Program MORSE allows continuous speed adjustment from one to 100 words per minute in any of three modes of operation: Receive, Send, and Code Practice.

In addition, up to ten programmable message memories (2550 characters total) allow "brag tapes", pictures, etc. direct from the keyboard. A special feature allows sending the time automatically at the press of a single key!



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80 METRE VERTICAL

M. N. O'Burill VK3WW
3 Maxwell St., Lalor, Vic. 3075

Here is a 23 foot antenna that is cheap, effective and easy to build. It is the answer for 80 metre operation when you can't erect a 136 foot flat-top.

The antenna is made from $\frac{1}{4}$ in. aluminium tubing for the lower section and part of the upper section, which is tuned by telescoping $\frac{1}{2}$ in. and $\frac{3}{8}$ in. tubing.

The loading coil is wound with 14 SWG enamel covered wire and is probably the hardest part of the whole project.

I mounted the antenna on a 30 foot Oregon pole and have the base of the antenna about 10 feet above the ground but there is no reason why it should not work with the base at ground level.

Using a wooden mast is an easy way of erecting a vertical, and providing it is insulated from the mast the antenna is not effected in any noticeable way.

I used a series of wooden blocks and shell brackets to hold the vertical in place. Each block measured $\frac{1}{2}$ in. x $2\frac{1}{2}$ in. x $\frac{3}{4}$ in. and had a $\frac{3}{4}$ in. hole positioned as shown in Fig. 1. 3 in. lengths of clear plastic tubing were then slid on to the aluminium tubing and positioned so as to insulate the antenna from the mounting blocks. Ordinary hose clips were used to hold the tubing in place once the blocks were mounted on the mast and the plastic tubing of course insulated the aluminium tubing from the hose clips.

If you have any trouble sliding the plastic on to the tubing, boil up some water and let the plastic lie in it for a few minutes; it softens very quickly.

The loading coil manufacture and mounting was the hardest part of the project, yet it seems quite simple at first. All you need is about 20 feet of 14 SWG wire, 3 pieces of perspex or similar insulating material, a coffee tin, a co-operative XYL, and lots of patience.

The aim is to finish up with a coil $4\frac{1}{2}$ in. diameter with 36 turns spaced to take up about 10 n.

My method was to carefully mark out the three pieces of perspex and then drill 36 holes in each, spaced one diameter of 14 SWG apart. Two perspex pieces measured 9 in x 1 in. and the third 10 in. x 2 in., which provided the method of mounting to the mast. I also used two more pieces to join the two 9 in. x 1 in. pieces across the coil to stiffen the mounting. It is hard to put into words, but the photograph should get the message across.

I first close-wound the coil on a 4 in. diameter coffee tin. As soon as tension was released the coil expanded to $4\frac{1}{2}$ in. diameter.

The next job is the hardest. Starting from one end of the coil thread the three perspex spacers on to the coil. You cannot do this single-handed, so be nice to your XYL or recruit some unsuspecting local amateur to help you. An hour or so later you will have a nice coil and/or a divorce case pending — no matter, it's all in the cause of science or something.

GETTING IT ALL TOGETHER

Mount the stand-off blocks on the mast as shown in Fig. 2, being careful to keep the holes in line. Next mount the coil using the large perspex spacer as the mounting to the mast. Next slide the tubing into position and tighten the hose clips to hold it firmly in place.

Carefully bare the wire at each end of the coil and tin about $\frac{1}{2}$ in. Now wrap a couple of turns around the tubing at each end of the coil and solder the wire to a lug held in place by a self-tapping screw. Use the same method at the base of the antenna to connect to the coax socket.

TUNING

At this stage I should mention that my mast is hinged to an extended barge-board and can be easily tilted to horizontal. This is necessary as all adjustments are made by sliding the $\frac{3}{4}$ in. tubing at the top of the antenna.

I find the best method of getting any antenna on frequency is to use a noise bridge and a general coverage receiver. If you don't have a noise bridge you can buy or build one. A good article on building one appeared in AR for July 1971, with modifications in AR October 1971.

There are two reasons for using a general coverage receiver.

One is that your first try could well have the antenna out of band limits. Also most modern transceivers are too sensitive and selective and make finding the null hard work. In any case adjustments are small, say 1 in. or 2 in. at a time, so you have to be prepared to do a lot of climbing up and down the ladder.

I selected 3.6 MHz as centre frequency and SWR checks show a bandwidth of at least 50 kHz each side of centre.

The test of any antenna is how it works under all conditions. Previously I have used a G5RV in inverted V configuration, so I ran checks against this antenna. The table shows the results — generally over longer paths (200 miles or more) the vertical won every time.



Coil close-up showing construction detail

All verticals are noisier than horizontals and this one is no exception. However, the increase in noise was not too bad, perhaps because an inverted V has some vertical properties anyway.

It would be great to have an 80 metre dipole and a vertical but this isn't on for the average suburban block, so I think this vertical is quite an efficient antenna under the circumstances.

MULTI-BAND AS WELL

After satisfying myself that the vertical was working well on 80m I tried loading it on other HF bands.

I fed it through an aerial coupling unit (Willy Willy's Wonder, AR January 1977) and found I could load it quite well on 40m, 20m and 10m.

Of course on these extra bands it does not perform as well as a full size dipole but is suitable as an emergency antenna capable of working all VK and ZL at least.

All things considered, this antenna is cheap, fairly easy to build and tune and performs well on 80m. With little imagination it could be made to fit most houses.

No radials were used but an earth spike at the base is essential. My vertical is fed with 70 ohm coax because I had some available. It would probably perform better with 50 ohm and even better with a 2:1 RF transformer, so there is room for improvement if you have the bits and pieces available.

All soldered connections were covered with DENSO 510 tape to provide weatherproofing. This tape is covered in wax, which enables moulding by hand once it is wrapped around the tubing.

This article is written mainly for the amateur with limited space, and it is hoped that it will enable more amateurs to enjoy 80m operation.

TEST TABLE

Distance	G5RV	Vertical
2-10 NM	0	+ 10 dB
Melbourne-Sydney	0	+ 2 S points
Melbourne-ZL2	0	+ 2 S points
Melbourne-Wagga	0	+ 1 S point
Melbourne-Adelaide	0	+ 1 S point
Melbourne-Hobart	0	No Difference
20-200 NM	0	+ 1 S point
10-20 NM	0	+ 2 S points

C.A.R.E.

(Community Amateur Radio Events)



The 80 metre vertical

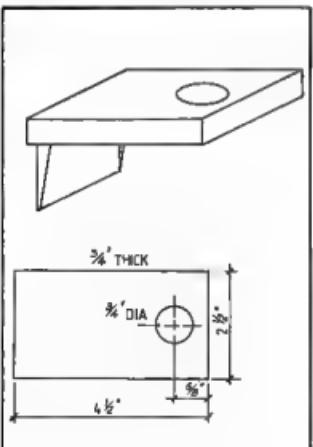


FIG. 1: Wooden blocks stand off construction.

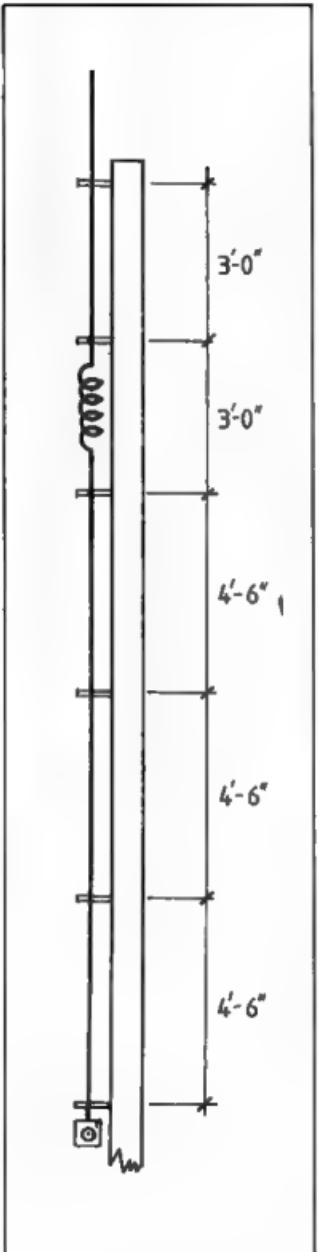


FIG. 2: Stand off mounting positions

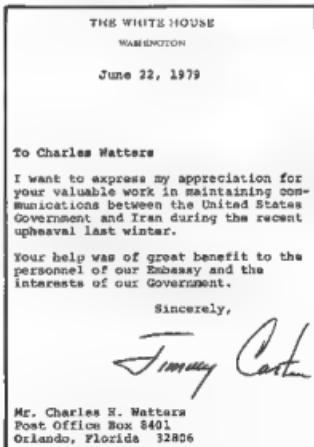
In times of emergency amateurs often provide the only communication link. One recent occasion was on February 15, 1979, when the US Embassy in Teheran was occupied by Iranian nationals. Charles (Chuck) Watter W4RHE had been keeping in touch with his sister and her family in Teheran via a local amateur. After the US Embassy's communication facilities were shut down Charles became the official relay station for the State Department in Washington and kept the link operating until the Iranian amateur station was closed down. The information passed via the link gave the US its only information in relation to the safety of its embassy staff during the initial stages of the occupation.

Letters of thanks from the White House and the House of Representatives were sent to Charles.

Charles, who from 1960 to 1962 held the call VK6TB, has been licensed for 31 years and welcomes VK QSOs and VK visitors.



Charles W4RHE (left) presented with letter
by Congressman Nelson



Letter signed personally by President
Jimmy Carter

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and this performance

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Frequency Stability: Better than 6ppm 0°C to +60°C

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300Hz to 2KHz

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Selectivity: 50db at ±25KHz

Sensitivity: 0.3µVpd (12db SINAD)

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PHILIPS



PHOTO 1: The much sought-after RD Contest Trophy — a reminder of those amateurs who became Silent Keys during World War II. (See page 27 for last year's results.)

QSP

16 GHz DX RECORD

According to Ham Radio of Oct. '79 a new 3 cm band record was set on 27th July by 4CHY7 and 12FZD/2. The distance of 633 km was from a mountain top NE of Milan by the latter station to Testa del Gargano on the Adriatic Coast by the latter. Both used Gunnplexers and 1m dish antennas.

ALL AIRWAVES ARE NOT FREE

An article, so entitled, appeared in Oct. '79 QST and gives much food for thought. It's too lengthy to quote in full but deals with MDS (Multi-Point Distribution Services) systems in the 2.16 GHz region which are over-the-air relay systems for premium movie and other specialized TV fare received on a monthly rental basis and providing recording system equipment (by calls around \$50 per installation) and interceptor of geostationary (common carrier programmed) satellite channels.

PHILATELISTS' NOTE

West Germany has issued a 60 pfennig WARC commemorative postage stamp which shows the front panel of a Collins KWV-2 transceiver tuned to the 21 MHz CW band. Plans for a separate amateur radio commemorative stamp have been dropped resulting from this issue. Ham Radio, Oct. '79.

HISTORIC "JUNK"

In his editorial to Oct. '79 Ham Radio Jim Fleck W1HR bemoaned his inability to attend an auction recently of surplus electron equipment dating back to the 1920s built into custom-made wooden cases which were then in fashion. Most of the buyers, he said, were antique dealers who were interested only in the finely crafted cabinets — the priceless radio equipment inside was destined for the trash heap. He quoted another earlier opportunity missed for acquiring old gear for his collection from a sale of a local deceased amateur's collection of "junk" which filled two large warehouses. He recommends amateurs to talk to their heirs and claim them in their lands. If any, belong in a museum. Put the details down in the will and give you executor the names of trusted amateur friends to help dispose of more modern gear at a fair market value as the equipment's value would be meaningless to most collectors.

MARITIME EMERGENCY

The following is pieced together from articles in the Toowoomba Chronicle of 11th, 14th and 28th December received from Steve St. George VK4SE, all acknowledged with thanks. Stephen Zadlochik with his wife Jenny VK4NNV/MM and his brother Gary set sail from Brisbane aboard the 32 ft Toowoomba-built steel sloop "White Wave" in August '79 on a round-the-world trip. Daily logs were kept between VK4SE and the sloop which ran into cyclone Albert some 500 miles south-east of Rodriguez Island in the Indian Ocean. Before the storm reached its peak on 3rd December, VK4SE received a relayed position from the sloop and several other amateurs in Australia, South Africa and Mauritius joined in a listening watch. VK4SE also reported the details to "Marine Operations" in Canberra. The sloop was rolled four times during the storm. The life raft went overboard on the first roll, the mast went in the second capsize next day, but throughout the radio was saved and when dried out, Jenny was able to transmit Morse for a contact with a ZS station on 8th December using a makeshift antenna rigged up on 6th December. By that time the batteries were nearly dead and no fuel and no mast but were making two knots under July rig. The ZS authorities were ready to mount a rescue operation but before they could act, clearance was required from Canberra. However, the Mauritian authorities did act and the sloop made harbour for shipment to Toowoomba for repairs. All the occupants were safe and had returned home.

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To handle our quality range of products (as above). The market area includes government and commercial bodies. A pre-requisite is an Amateur Radio licence or willingness to obtain one at the earliest opportunity. Some service experience would be an advantage. The position involves some travel.

Salary & conditions negotiable.

APPLICATIONS

Initial applications should be in writing stating work experience, qualifications and other relevant details.

*Mark Confidential
Att: Mr. Brian Beaminish*

CW ELECTRONICS

P.O. BOX 274, SUNNYBANK QLD 4109

HOORAY FOR

(NONE OF THE ABOVE)

Submitted by

Bruce Saxon VK3NSB
77 Edithvale Road, Edithvale, 3196

This concoction is dedicated to all those hard working amateurs who so generously give of their spare time to present courses and lectures to aspiring students of NACCP and AOCOP.

The idea was taken from the Educational Magazine, Vol. 36, No. 5, 1979, titled, Hooray for (None of the above).

The time is set as some time in the future.

I wasn't aware of the awesome changes sweeping through our educational system until I visited the Henry Radio School the other day and had a little chat with its Prince pal, Dr. Homer P. Dantic. "How are you?" inquired Dr. Dantic, shaking my hand. "(A) Just fine, (B) not too bad, (C) so-so, (D) not too hot, (E) at death's door?" "(A) thank you," I said, "and you?" "(B)" said Dr. Dantic. "But let me tell you I certainly was (D) last month when our Novice grade students scored in the thirty second percentile of the seventh stanine at the Novice grade level on the Standard Webley-Vickers Radio Theory Test." "Good grief," I cried, "What an indictment of your educational methods. Did you discover a solution?" "Well it was clearly a multi-pie choice problem," said Dr. Dantic. "Tell me, do you think we should have (A) purchased one of the 1156 other sample tests now on the market, with the hope that there would be at least one test that would make our faculty look good; (B) attempted to attract a better calibre of student through a recruitment programme; (C) drastically revised our teaching methodology; (D) burned down the school; (E) none of the above?" "Let's see," I said. "I think . . ." "Sorry, your time is up," said Dr. Dantic, clicking his stopwatch. "Actually after much thought, we took the plunge and decided to (C)." "You mean you have drastically revised your methodology for teaching Radio Theory?" I asked. "No, we have drastically revised our methodology for teaching our students how to score well in multiple-choice tests," said Dr. Dantic.

"Would you like to see one of our new dynamic instructional modules in action?" I said I would, indeed. It was a most enlightening experience. The module we visited contained 32 students and Miss Ann Tenna, an enthusiastic young teacher. As we entered the room Miss Tenna was reviewing a homework assignment. "Who can tell me the name of the assistant who polished Marcon's ebony rod with cat'skin?" she asked "Adrian?" "The name," said Adrian, "(B)." "Very good, Adrian," said Miss Tenna. "Now, Peter, please tell the class the age of the pilot of the first communication satellite." "It is (D)," said Peter. "Wrong, wrong, wrong," shouted the class, "it is (E)."

Miss Tenna regained control and continued with the probing questions. "What is the square root of 15 712?" (Answer (C)) "Does Mr. Diode still work for Telecom?" (Answer (A).) And so the lesson continued.

"I didn't know you taught the historical aspect of Radio Theory," I remarked to Dr. Dantic. "We don't," he replied. "Then how can Miss Tenna test the students on it?" I asked. "She's not testing on that," explained Dr. Dantic, "She's testing their ability to take tests."

Well, I wish you could have seen the crackajack way in which those students performed. When Miss Tenna cried "Go", all the students had their papers flipped over in a millisecond and their pencils flashing away as they ruled the little marks on the answer sheet. By the time Miss Tenna blew her whistle Peter was only half way down the page. Miss Tenna looked at him and sighed "How often do I have to tell you, Peter?" she admonished. "When you see that you won't have time to finish a test, simply slash a vertical line down the page, hitting as many boxes as possible. If each question has five alternative answers, you will thereby increase your score by an average of 20 per cent. Adrian will you read your answers to the class?" "Yes," said Adrian, "(B), (B), (B), (B), (B) . . ." "I take it you answered (B) to every question," interrupted Miss Tenna. "Can you tell us why?" "Simple," said Adrian, "I recognised the format of the Hispano-Suiza Multiphasic Norm-Referenced Scholastic Evaluation Test. I immediately recalled that the computer readouts we studied last week indicated (B) was the correct answer 26.8 per cent of the time in Hispano-Suiza multiphasic, as compared to 16.9 per cent for (A), 18.3 per cent for (C), 19.7 per cent for (D) and only 16.3 per cent for (E)." "Very good," said a beaming Miss Tenna. "Class dismissed."

Miss Tenna's admiration for Adrian was echoed by Dr. Dantic when we were out in the corridor. "Adrian is the brightest student we've had here at Henry Radio School in years," he said. "He has already single handed raised our faculty performance record 13 per centiles on the Standard Webley-Vickers Intermediate Placement Test. And thanks to his score of 799 on the Academic Aptitude test, he will move directly to AOCOP classes next year." "Most impressive," I said. "Yes," he said, "We are predicting a brilliant academic future for this young chap as he seeks the answers to those all-important questions." "In which facet of amateur radio would he specialise?" I asked. "Multiple-choice testing, of course," he replied. ■

WESTERN ZONE CONVENTION

Jack Thomas VK3NTN
1 Stevens Crescent, Ararat 3379

The Annual Convention of the Western Zone of the Wireless Institute, Victorian Division, was held at Halls Gap on the 10th and 11th of November 1979 and was a great success. The Saturday venue was held with a dinner at the Mountain Grand Guest House with 94 attending. Guest of honour was the President of the Victorian Division, Mr Eric Bugbee VK3ZZN and his lovely wife, with many visitors from many parts of Victoria and interstate visitors.

Sundays venue was slightly marred by an opening of the heavens but this was only a minor setback as the proceedings were carried out in the Halls Gap Hall. Forty-six ladies plus a couple of wandering OMs took advantage of the day to have a memorable sightseeing tour of the Halls Gap area.

Trade exhibits were excellent and many an amateur left with an empty pocket lmarc, Vicom, Wecam, Hamilton Electronics and the Maccabbin Club contributed to the drawing of funds and provided excellent displays of various gear.

The convention was a unanimous success and many people have pledged to return to the Halls Gap area again, independent of any conventions. I wish to thank sincerely all those who attended and those whose help effort made the convention worthwhile. Special thanks to Sylvia Rose and her son and the trophy donors for the various events. We hope those who attended left satisfied and those who could not attend can make it to our next convention. ■

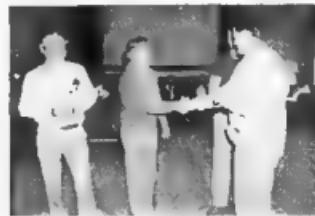


PHOTO 1: Jack VK3NTN congratulates Gordon VK3NO (right) who won the lucky entrance. Brian VK3ZBS looks on.



PHOTO 2: Laurie VK3NDL (c) presents Jack VK3NTN with an award.

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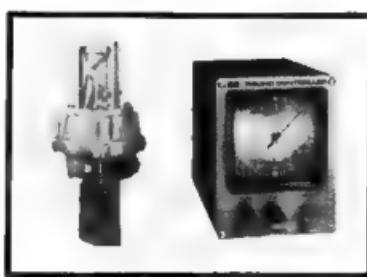
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Rotation time (approx)	50 sec	64 sec
Rotating torque	500kg/cm	600kg/cm
Braking Torque	2000kg/cm	4000kg/cm
Vertical load	200 kg	200 kg
Weight	4.5 kg	4.6 kg
Cable	6 core	6 core
PRICE (cable \$1 per mt)	\$189.00	\$259.00



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Due to the most up-to-date computer technology, just one piece of equipment can now handle both transmitting and receiving in CW, RTTY and ASCII.

VHF and Composite video output provided:

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Wide range of transmitting and receiving speeds.

10 communication speeds for transmitting (with automatic CW speed adjustment on receive) and 6 communication speeds for transmitting and receiving in RTTY and ASCII. The multiple speed feature makes the Theta 7000E ideal for Amateur, business and commercial use.

Bulletin demodulator for high performance.

Three-step shift (either 170Hz, 425Hz, 850Hz) can be obtained in High Tone and Low Tone by the switch. Manual adjustment is available by FINE TUNING control.

Crystal controlled modulator:

A transceiver without AFSK function can transmit in RTTY mode by utilising the high stability crystal-controlled modulator controlled by the computer.

Convenient ASCII key arrangement:

The keyboard is designed as a regular typewriter and automatic insertion of LTR/FIG code makes operation a breeze.

Large capacity display memory.

The two-page display memory contains 32 characters x 16 lines per page. Page selection is operated via the keyboard.

Split-screen:

With a keyboard command, the same page can be divided in two; the upper half for transmit and the lower half for receive. Sentences can be edited whilst receiving.

Automatic Transmit/Receive switch:

The transmit/receive switch is controlled by the microprocessor. Manual operation is also available. Built-in remote control key function controls the transmit/receive switch of the transceiver.

Anti-noise circuit:

A new anti-noise circuit prevents garbled messages when there is no signal.

Battery backed-up memory:

Data in the battery-backed-up memory is retained when the external power source is removed. The Theta-7000E has provision for 64 characters x 7 channels in the non-volatile memory. Data in this memory can be repeated 1-9 times from a keyboard instruction. Every channel can read out continuously. The channel number in use is displayed on the screen.

SEND function:

The SEND function sends the whole data displayed on the screen, including the stored data in channels with an instruction from the keyboard. The message can be stopped and easily restarted.

Buffer memory:

A 512-character-buffer-memory is displayed on the 17th and 18th lines on the screen. The characters move to the left erased one by one as soon as they are transmitted. Data in the channels can be displayed in the buffer.

Rub out function:

Mistakes can be erased whilst the information is still in the buffer memory. If the mistake has already been sent correcting code will be transmitted.

Simultaneous access of the memory.

Whilst receiving, it is possible to write into the channel memory and the buffer memory from the keyboard. When sending from the channel memory or the screen it is possible to write into the buffer memory.

Pre-loading functions.

The buffer memory can momentarily store data and release it on an instruction from the keyboard.

Channel No., Page No., and Case IFIG/LTR.

Channel No., Page No., and Case IFIG/LTR in RTTY are displayed in the 17th line of the screen.

CR (Carriage return)/LF (line feed) cancel function.

When receiving CR or LF, they are replaced by = (equal) and (underline) respectively for effective use of the screen.

Carrier control function.

Full cursor control (up/down - left/right) is available from the keyboard.

WORD MODE operation.

Characters can be transmitted by word groupings.

Automatic CR/LF.

Whilst sending, CR/LF are automatically inserted once every 72 (50 or 80) characters.

End of transmission.

With a keyboard instruction, received data can be read and sent out at the same time. A cassette tape can be used as the source data.

WORD/BREAK ARITHMETIC function.

In receive mode word-break-around prevents the last word of line from splitting in two. On instruction from the keyboard, the same AFSK signals as used in RTTY are transmitted in ASCII mode.

Character identification function.

Keyboard controlled CW identification is available if required.

MARK-AND-BREAK (SPACE-AND-BREAK) system.

Either mark or space tone can be used to copy RTTY.

Build in monitor.

A built-in monitor circuit with an automatic transmit/receive switch enables checking of the transmitting and receiving section. In receive mode it is possible to check the output of the marker filter, the space filter and AGC amplifier prior to the filters.

CW marker function.

The Theta-7000E reads data from the key and displays the characters on the screen.

Variable CW marker.

For CW transmission, weights (ratio of dot to dash) can be changed within the limits of 1.3-1.6.

Cross-pattern checking output terminal.

Provision has been made for attachment of an oscilloscope to aid tuning. This supplements the built-in LED and audio monitor provided in the system.

Log-computer output provided.

The Theta-7000E has an output terminal for connection to a log keeping computer.

Test message function.

"RY" and "OB" test messages can be repeated with this function.

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Typical Technical Characteristics

General (Australian Model): Number of semiconductors: Transistors 41; FET's 7; IC's 13; Diodes 33 (Except Micro Board). Frequency Coverage: .45-168 MHz. Antenna Impedance: 50 Ohms. Unbalanced Power Supply Requirements: DC .3.8V ± 15% Negative Ground: 2.5 A Max. Current Draw: Transmitting Approx 2.0A; Receiving At Max Audio Approx 0.7 A. Squelched Approx 0.4A. Dimensions: 58mmW x 9.1 x 156mm(H) x 218mm(D). Net Weight: 1.9 Kg. Channels Installed: R1-8, 40, 51. Transmissions: Transmitting Frequency: 22 Channels in the 2m Band. Programmable by a diode matrix for any channels on 25MHz spacing. Emission Mode: 16F3. Output Power: 10W. Max. Frequency Deviation: 500Hz. Modulation System: Variable

Impedance: phase modulation. Spurious Emission: More than 60dB below carrier. Microphone Impedance: 600 Ohms. Input level: 10mV typical. Dynamic or optional Electret condenser microphone. Reception: Receiving Frequency: 22 Channels in 2m Band. Modulation Acceptance: 16F3. Receiving System: Double super heterodyne Intermediate Frequency List: IF-10.7MHz; Second IF-455kHz. Sensitivity: Less than 0.5uV for 20dB Noise quieting. More than 30dB S+N-H/D+N+D at 1 uV. Squelch Sensitivity: Less than 0.3uV. Spurious Response Rejection Ratio: More than 60dB. Selectivity: ± 7.5kHz at the -6dB point; ± 15kHz at the -60dB point. Audio Output Power: More than 1 Watt. Audio Output Impedance: 8 Ohms.

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AMATEUR SATELLITES

R. C. Arnold VK3ZBB

OSCAR 7

Efforts to maintain AMSAT OSCAR 7 on its old schedule of operation have been successful in recent months. For those who may not remember, Mode A operates on odd days of the year with Mode B on the even days. Wednesday is experimental day on Mode X.

The tentative launch date of the British UOSAT Amateur Satellite is 13th September, 1981.

Probably the most "up to the minute" and comprehensive notes on satellite activity are found in the newsletter of the Mode "J" Club. I can only repeat some snippets from this newsletter as they are rather dated by the time they appear in AR, but I am sure many OSCAR fans must have qualified for membership of the Club and could receive their own copy — details have been published in recent editions of these notes.

Congratulations are due to Larry Roberts W9MXC, the editor of Mode "J" Newsletter, for a job well done.

Have you ever thought of exchanging your AMSAT membership during a satellite contact? If you work a station not possessing a membership number, give details of AMSAT and suggest he should join this elite organisation. The same suggestion goes for Mode "J" contacts.

LOOKING AHEAD

1980 May — AMSAT Phase III satellite.

1980 Sometime — Two more Russian Amateur satellites.

1981 September — UOSAT.

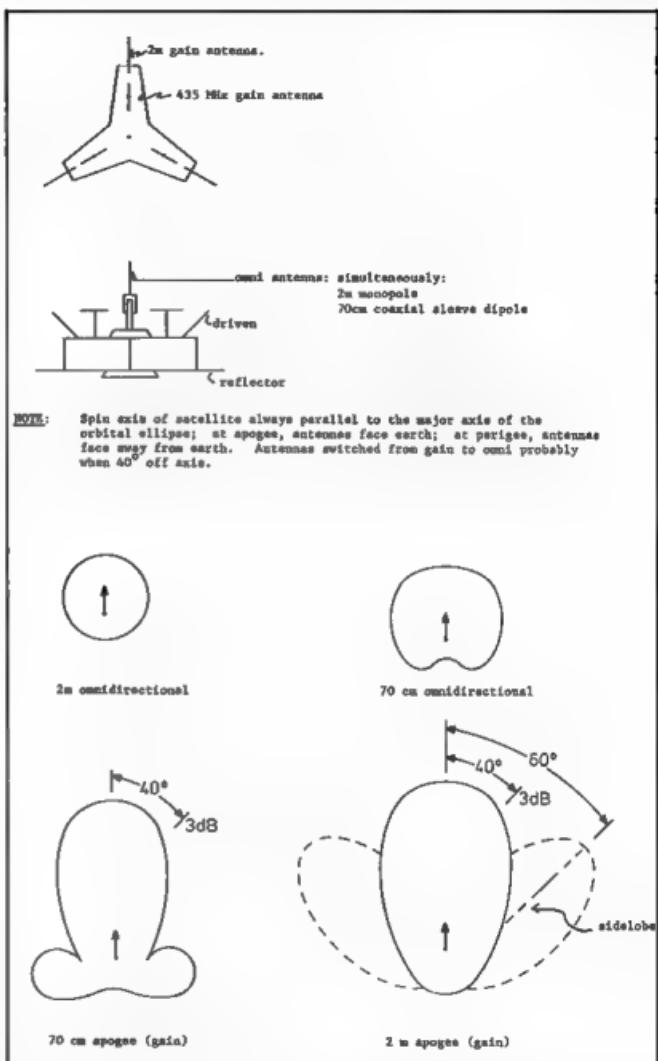
1984 A French Amateur Satellite is expected to be launched from Kourou in French Guiana on an Ariane Mission. It will probably carry two transponders, one on Mode J (up 145 down 435 MHz), the other with uplink 435 MHz and downlink 1260 MHz (this seems to conflict with the latest WARC information — Bob)

Do you realise the AMSAT OSCAR 7 has completed five years of operation? It is interesting to note that the prime load with which AO7 was launched only lasted about 1½ years.

OSCAR IN THE CLASSROOM

Bill Magnusson VK3JT who is vitally interested in the use of amateur satellites for educational purposes, has agreed to act as Phase III OSCAR Education Programme Co-ordinator in Australia. Bill has asked me to include the following notes.

"With the imminent launch of Phase III and the general upturn in interest in VHF, UHF and satellite communication, an attempt will be made in 1980 to tie together the very considerable educational possi-



SCHEMATIC 1: Spacecraft antenna placement and pattern AMSAT OSCAR Phase III-A.

bilities of the AMSAT programme in this country.

"I have been asked to act as education co-ordinator and one of my first priorities will be to compile and distribute a register, hopefully as complete as possible, of all school-based radio clubs or groups with an interest in the amateur satellite programme. A considerable amount of in-

formation of interest to such groups is already available from AMSAT and ARRL and I will be in a position to disseminate this and to act as a central source for collection and distribution of such information. I will also be making approaches through the various State education departments for advertising space in gazettes and journals and through standing com-

mitees in the physics, general science and electronic practices areas. I'm sure many secondary school's have radio clubs. Many such clubs are run by or have available a licensed radio amateur. I will be trying to show these clubs that it really is quite easy to become involved in OSCAR and that the educational spin-off is immense. It should be well within the grasp of even the most modest club to take part.

"Should anyone reading this feel they could contribute or require information, or would like to be placed on a register, they could write to me, care of Footscray Technical School, Ballarat Road, Footscray, Vic 3011".

The following updated information on AMSAT OSCAR Phase III-A has been received from Steve Place WB1EYI and should be of value to those contemplating monitoring the satellite:

"AMSAT OSCAR Phase III-A, as all previous OSCAR satellites, will receive a numerical designation once it successfully achieves orbit. At that time it will be referred to as either AMSAT OSCAR X (probably AMSAT OSCAR "9") or AMSAT X (AMSAT 9), NOT OSCAR X. The proper abbreviation will be A-O X (probably A-O 9).

The latest updates on the projected orbital parameters (these figures are still tentative) are shown in Table 1.

Revised Maximum access time

The projected maximum access time has changed. Given the new period of about 10 hours and 28 minutes, a station at 30° N altitude, for example, will have about 9½ hours of continuous access. This, of course, would be for the ideal pass for a particular station at this latitude; stations at different latitudes will have differing times. Also, certain orbits may not be accessible at all. Apogee latitude will very gradually shift North, increasingly favouring higher N altitudes, and access times for a given location will change. Eventually, apogees drift will swing south and occur over the equator and below, favouring S latitudes.

Rate of change in apogee latitude

Immediately after firing, the projected initial latitude of apogee will be about 24.8° N lat, and of perigee will be about 24.8° S lat. The rate of change of apogee, and perigee, attitude (drift) will not be constant. The initial argument of perigee (angle in the orbital plane from the line of nodes to perigee — measured counterclockwise) will be about 210°; its rate of change will be constant at about 0.07° per day.

To determine the change in the latitude of apogee and perigee, use the following relationship (angle of inclination = 57°) (W₀ = argument of perigee)

$$\text{perigee latitude} = \arcsin((\sin i) \times (\sin W_0))$$

For example, ten days after firing, assuming the projected values are correct, the argument of perigee will have changed to:

$$210^\circ + (10 \text{ days} \times 0.07^\circ/\text{day}) = 210.7^\circ$$

and from this, we calculate that perigee will occur at:

$$\begin{aligned} \text{perigee lat.} &= \arcsin((\sin 57^\circ) \\ &\quad \times (\sin 210.7^\circ)) \\ &= -25.35^\circ ("—" \text{ means S lat.,} \\ &\quad \text{apogee is "+" Or N}) \end{aligned}$$

In other words, in ten days, perigee will occur about 0.5° further South, and apogee 0.5° further North. Again, the rate of change of the argument of perigee is constant, the rate of change of apogee/perigee latitude is not.

Firewheel — the primary payload

AMSAT OSCAR Phase III-A will ride piggyback*, or as the secondary payload aboard the European Space Agency Ariane LO2 mission. The primary payload is an experiment called Firewheel which will be mounted atop what ESA calls the "CAT" or Application Technology Capsule. Phase III will be mounted below Firewheel, affixed to the side of the CAT. Firewheel comprises a series of cannisters, arranged around the top circumference of the cylindrical CAT, containing explosives, lithium, barium and other compounds. When exploded, these will form a visible, "glowing", steam-like cloud, enabling scientists to study the patterning of the earth's magnetic field. Phase III will be clear of the experiment before the explosive charges are fired.

Transfer orbit bulletins

During the transfer orbit, AMSAT engineers will make precision ranging measurements to determine the actual orbital parameters as accurately as possible for the critical kick motor calculations. One-way bulletins

will occasionally be transmitted near apogee to explain the status of the mission, but the satellite will not be available for general use until a short time after firing. All are urged not to interfere with this work.

Special Service Channels

Included in the Phase III bandplan are six SSCs; the correct sequencing, placement, focus and co-ordinators follow:

L1	Scientific (formal, scheduled)	N1DM
	17 kHz up from General Beacon	
L2	AMICON (computer)	WA2LQQ
	21 kHz up from General Beacon	
L3	NTS (formal, record CW traffic)	
K1XA		
	25 kHz up from General Beacon	
H1	CW/RTTY Bullet n, CW Pract ce	
W1EH		
	17 kHz down from Engr. Beacon	
H2	Education (schools and ham)	
WB1EYI		
	21 kHz down from Engr. Beacon	
H3	Phone Bulletin (international)	
G3IOR		
	25 kHz down from Engr. Beacon	

All SSCs are 4 kHz wide. Send all comments, inquiries and suggestions to the co-ordinators via AMSAT headquarters.

General Beacon format

The General Beacon, located at about 145.81 MHz, will contain much useful information on. Each hour will be formatted the same so that listeners will know exactly when to listen to get the information they need.

A suggested format appears in Table 2.

TABLE 1:

Parameter	Transfer Orbit	Final Orbit
inclination	17.5°	57°
apogee altitude	34,385 km	34,385 km
perigee altitude	200 km	1,500 km
argument of perigee	190.587°	210°
drift rate (arg. of per.)	0.7838°/day	0.07°/day
anomalistic period	603.78 minutes	628.8 minutes
perigee latitude	about 3.2° S lat	about 24.8° S lat
weight of spacecraft: 75 kg (165 lbs.)		

TABLE 2:

Time	Interval (minutes)	Duration (minutes)	Content
T0	0-1	1	CW i.d. and preamble
T1	1-3	2	basic orbital data
T2	3-6	3	CW telemetry data
T3	6-21	15	CW bul etm board
T4	21-26.5	5.5	RTTY rerecan of above
T5	26.5-30	3.5	CW telemetry
T6	30-31	1	CW i.d. and preamble
T7	31-33	2	basic orbital data
T8	33-36	3	CW telemetry data
T9	36-51	15	CW bulletin board
T10	51-56	5	RTTY week's orbits
T11	56-60	4	fill to the hour with CW telemetry

CW code speed will be 15 words per minute.

Telemetry formatting

With previous OSCARs, telemetry was transmitted as raw data — numbers that were in themselves meaningless and which had to be "translated" by equations or graphs into meaningful data such as voltages and currents. Phase III, however, will transmit meaningful data that has been processed in its flight computer. During the 3 minute telemetry transmissions, 20 channels out of a possible 64 will be sent in a five number format. The first two digits will be the decimal channel number, followed by the three digit value. The user will look up a given channel number in a table in which he will be told where to place the decimal point and what the unit of measurement is. For example, 32498 would be channel 32 (decimal) with a value of 498. From the table, you would find that the value should be multiplied by 0.1 and was a measure of watts: transponder power out. The transponder was putting out 49.8 watts (this is strictly an example and channel assignments may change).

AMSAT calling frequency: 28.680 MHz (no scheduled activity but excellent source of information if individuals are monitoring. All are encouraged to check in).

The following diagrams illustrate the antenna arrangements on AO Phase III-A together with their patterns for 70 cm and 2m.

OSCAR 8 orbital parameters are forever changing and it has been difficult to predict what they may be at the time of

publication of these notes. It is surprising what a significant effect 10⁻¹ seconds per orbit has when estimating times some 2½ months ahead. The predictions for February are submitted with "fingers crossed" and I hope they will turn out to be reasonably accurate — at least any inaccuracy should be consistent.

ORBIT PREDICTIONS — FEBRUARY 1980

OSCAR 7

OSCAR 8

Date	Orb. No.	Exp. Z	Exp. *W	Orb. No.	Exp. Z	Exp. *W
1	23845	0119	87	9728	0046	53
2	23857	0018	72	9742	0050	54
3	23870	0112	86	9756	0053	55
4	23882	0010	70	9770	0056	56
5	23885	0106	84	9784	0100	57
6	23887	0005	69	9798	0103	58
7	23892	0100	82	9812	0107	58
8	23893	0154	95	9826	0110	59
9	23845	0053	81	9840	0113	60
10	23858	0147	94	9857	0117	61
11	23870	0047	79	9868	0120	62
12	23883	0141	93	9882	0124	63
13	23895	0040	78	9895	0127	64
14	24000	0135	97	9810	0130	64
15	24020	0034	76	9824	0134	65
16	24033	0126	90	9836	0137	66
17	24045	0028	75	9852	0141	67
18	24058	0122	88	9865	0001	42
19	24070	0021	73	9979	0004	43
20	24083	0116	87	9983	0008	44
21	24085	0015	72	10007	0011	45
22	24104	0109	85	10021	0015	46
23	24108	0109	85	10021	0015	46
24	24120	0009	70	10035	0018	46
25	24133	0103	84	10049	0021	47
26	24145	0002	68	10063	0024	48
27	24158	0058	82	10077	0027	48
28	24171	0151	98	10086	0031	50
29	24183	0050	80	10105	0034	51
	24196	0144	84	10119	0058	51

QST

CW REQUIREMENT

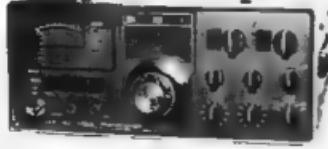
The editorial in Oct. 79 QST seeks expressions of opinion by US amateurs that there should be no change in Article 41 of the ITRU Radio Regulations. This is the article dealing with the Amateur Service. The ARRL makes it clear that no change should be made to this Article — a position maintained by ARRL for some years. Despite this, the FCC proposed that the Morse Code requirement below 144 MHz be eliminated. A change which is not wanted by the Amateur Radio Service. If adopted and we don't like it, "nearly everyone" is concerned over the possibility that one of the strengths of the Amateur Radio Service would be eroded if these rumours are true". Well, as everybody now knows, WARC 79 dropped the minimum frequency requirement for Morse code to 30 MHz from 144 MHz. ■

INDUCTION COOKING RANGES

An article in Oct. 79 QST draws attention to a new technological development in cooking appliances to come onto the market soon. AC at a frequency between 25 and 40 kHz is circulated in a coil under a smooth ceramic cooking top. When an iron pot is placed on the top (which is in the induction field of the coil), eddy currents are induced in the pot resulting in becoming hot and cook the food within it. It is stated that the induction range is much more economical and there is no danger of fire from oil spillage because the ceramic cooking top remains cold. Moreover, it is easy to clean being smooth. However, these ranges are a potential source of serious RF interference and the FCC in the U.S.A. has adopted regulations from 1.3.1980 which will apply to any induction cooking range using a frequency of 10 kHz or higher. Before any such range is put on the market certification is required that it meets certain radiation and conduction limits. ■

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1979 REMEMBRANCE DAY CONTEST RESULTS

WINNER – VK5 DIVISION

a.	b.	c.	d.	e.	VK5 RECEIVING	f.	g.	h.	VK5 RECEIVING	i.	j.	k.	l.	m.	n.	o.	p.	q.	r.	s.	t.	u.	v.	w.	x.	y.	z.
VK1	65	150	38892	40.5	15806	DID	2327	WT	324	HAW	119	ZYL	252	YFZ	156	AJR	80										
VK2	132	2035	66438	6.5	4309	ARX	2256	BHD	323	FM	118	ZYL	259	AIE	150	RN	73										
VK3	93	1545	56941	6.0	3426	DO	1624	HD	326	XT	116	NWII	245	XH	138	ZFI	66										
VK4	103	655	5247	15.7	8200	BYF	1735	NND	317	DEW	115	BRI	243	AMW	134	BIS	63										
VK5	175	818	9890	26.8	28529	NVT	1689	NRR	298	NJU	116	YIW	241	VAN	132	BER	60										
VK6	8	80	7509			DM	1580	WW	296	AJH	115	SJM	238	AAJ	131	ZBB	57										
VK7	93	462	66434	20.5	14395	HMY	1540	OH	294	QC	112	BQI	237	APZ	10	YQI	57										
VK8	1					BYZ	1520	DAI	287	DAB	107	ZI	227	NLT	103	AC5	50										
VK78	63	184	48724	35.3	18896	WT	1236	BMK	286	NAX	103	BKN	220	NZ	101	BVJ	44										
VKO	2					HOI	1183	VJH	256	NBO	102	BUJ	202	AER	101	AVV	41										

Column:

- a Full call logs received
- b Full call log entries saved (31 March 1979)
- c Total points score
- d Percentage participation of full calls
- e Trophy score ($a \times c / b = e$)

The following details show the section and the points scored:

VK1 CW

PG	1406	CDR	95	PM	65	BQ5	588	NWW	186	BYD	45															
DH	828	RP	86	BSU/P	54	LF	581	BUT	183	VHC	46	LV	1278	UA	408	OD	78									
DA	442	RC	82	DS	54	SS	577	NWL	182	VG	40	KX	1242	XA	365	XJ	75									
FT	372	8GG/P	80	Ji	42	AGS	679	MUA	179	ZVN	40	GH	806	LT	280	DY	40									
MW	252	BP	78	AYL	22	ASH	579	ALZ	175	ZLX	40	HH	808	JH	200	ZA	32									
8DB&P	192	KA	78			VAS	588	VBU	174	BOC	39	ARC	462	UC	188	CJ	480	YG	182							

VK1 PHONE

GB	2604	RK	170	RP	436	VEN	478	AIM	159	VOH	56														
JN	1945	AC	185	KA	435	DEQ	482	VKZ	159	ZTD	55	UX	2088	LZ	324	ZBV	103								
TD	1864	■■■	162	BP	428	NZ	431	VON	157	BHM	33	QD	1770	ADW	324	SF	101								
DA	1349	NCF	156	XU	416	AOA	420	HR	155	AWX	30	NOD	1732	NXL	323	NWH	101								
NAV	1158	NAQ	153	VW	405	BYS	417	VBF	152	BXQ	30	WIZ	1699	UG	315	DH	95								
GM	1087	ZAR	148	KP	370	EY	384	AXV	144	WD	26	AMH	1282	NAP	315	U	94								
NBM	1029	AVM	131	NCE	370	BIP	547	VCU	144	AJO	24	ADA	1264	OX	305	NVS	94								
KB	847	ACA	118	AYL	312	BVR	570	PT	143	DON	24	YD	1238	RP	305	AEK	90								
CV	840	ZOB	113	ZAH	309	PN	358	DDD	143	DR	22	AYL	1236	AEM	287	AF	87								
MX	781	DS	112	PM	276	BB	352	CI	135	ZI	13	NOP	1215	HUI	298	NCY	81								
NBK	736	ZWP	85	RJ	271	ABC	347	NNI	131	YNM	13	NOI	1198	AMJ	282	NOB	81								
NAT	728	MF	94	NAL	269	HQ	337	AKY	130	ZMY	13	KW	1177	UC	258	RE	75								
BR	628	JJ	63	VP	264	HTF	533	VPK	125	YHU	10	NFU	1084	ABG	240	ABB	74								
RC	621	BH	60	NBF	263	VQW	330	VRJ	122	IV	7	ADR	1089	NTE	225	ZRQ	74								
KV	601	DG	68	Ji	260	DEE	328	VNA	119			AMB	1047	VV	219	ZRF	66								
NAS	875	EF	68	NCP	258							KD	919	FE	212	GM	62								
NCL	885	EP	52	LF	252							DO	863	NOC	211	AHD	60								
FT	588	ZAG	52	ZT	250							CI	808	NMB	208	MU	55								
RH	814	YS	50	DH	228	XB	1178	AMD	378	YL	134	AAK	787	HB	205	PJ	55								
AW	481	8GG/P	37	8DB/P	227	AEW	1660	AJB	348	ARS	128	TE	783	ACB	201	ZBZ	54								
RM	471	CDR	23	WI	207	YF	788	ANI	322	AOK	98	AKT	796	UA	193	FU	52								
MCN	471	BSU/P	10	BC	193	FC	786	MJ	304	NEA	80	NUJ	737	VT	191	HZ	52								
NAM	453	Mb	8	NBS	162	YK	638	AMG	280	ABA	78	PK	758	NQ	189	AAU	51								
						DG	578	BOO	244	BUK	58	QA	728	NKK	188	IE	51								
						BDH	518	LV	229	AFW	54	PA	714	MA	169	ALD	47								
						Ji	480	RJ	180	FA	24	PS	695	NJB	157	QY	47								
						VF	438	SV	178	BYA	22	AMO	604	NHO	156	■■■	40								
												RT	543	CZ	135	VU	27								
												AAM	462	NGJ	132	AHO	25								
												NIK	425	AGT	127	TK	24								
												AGH	565	OS	136	PV	34								
												RT	543	RT	123	NLV	19								
												NOM	341	NS	120	NHS	19								
												AST	338	PZ	120	APR	11								
												NUJ	337	LE	120	ZGE	11								
												FX	325	MKJ	105	ZSD	11								
												IZ	324	GY	104	ZA	7								

VK1 RECEIVING

LFO003	R. M. Pillai	1312	VF	438	BYQ	997	NEA	449	ADH	565	OS	336	NXT	399	NUH	127	G1	22							
L10042	P. Zerev	1184			AQZ	2053	AUQ	862	BPH	436	RT	543	CZ	135	VU	27									
LFO002	G. v Berger	918			BSH	1781	NAW	819	BRN	412	AAM	462	NGJ	132	AHO	25									
J. Galas		578			BPF	1767	GI	739	LP	386	NIK	425	AGT	127	TK	24									
L10018	K. Ray	473			WP	2554	BJQ	997	NEA	449	ADH	565	OS	336	PV	34									
					AQZ	2053	AUQ	862	BPH	436	RT	543	CZ	135	VU	27									
					BSH	1781	NAW	819	BRN	412	AAM	462	NGJ	132	AHO	25									
					BPF	1767	GI	739	LP	386	NIK	425	AGT	127	TK	24									
					WW	1624	BRN	666	VAH	363	NOM	341	NS	120	NHS	19									
					NMI	1362	SM	673	NEV	361	ZB	340	WT	123	NLV	19									
					DEW	50	NLD	1327	XF	841	BHU	337	AST	338	PZ	120	APR	11							
					ASY	42	BIR	1275	BDF	590	ARV	315	NUJ	337	LE	120	ZGE	11							
					VM	152	NYQ	1243	EF	846	ZA	289	FX	325	MKJ	105	ZSD	11							
					■■■	38	NYQ	1243	EF	846	ZA	289	FX	325	MKJ	105	ZSD	11							
					BLK	128																			

VK5 RECEIVING											
VM 1264	NLC	300	KQ	64	R Whitford		BP	322	DG	143	NAD
BN 1016	QR	216	ZX	84	R. A. Cunningham	2690	ZZ	307	JG	139	4PB
OR 938	QO	194	AU	66	BBC30785 D. Nelson	536	LH	302	LR	139	IC
FM 826	RT	180	JG	66	R. Dayman	344	NXB	295	DL	138	RP
SW 804	FX	174	PK	52	D. Warrington	344	NJX	246	NOW	136	KS
XD 656	ABB	130	NHQ	52	I50122 G. Edmeades	112	NGR	229	NAM	124	AX
LI 654	KU	116	KL	48		85	PS	224	ZLB	118	ZAJ
HO 388	RG	94	NMO	36			NOA	201	ZTA	102	NB
VK6 CW											
CX 2562	VV	349	ZHR	114			FT	199	NBI	96	MK
GH 2123	ASA	347	NAQ	51	RS 826	BD	YY	156	ZAO	88	ZLD
MM 1987	ZAT	345	WIE	106	RU 792	RM	YY	149	ZAG	78	ZSJ
KK 1856	OL	343	WIE	107	ED 842	GW	YY	148	CF	74	ZAK
WV 1697	ABW	328	NHQ	107	VK 466	NFA	YY	12	NSA	73	RR
NTB 1388	NEB	333	ZJJ	106	AJ 470	GA	YY	12	AL	148	GB
NTB 1347	NLS	324	SE	104	HX 418	YG	YY	10			
ARC 1345	NCO	315	EQ	103							
NV 1279	ZON	316	DJ	102							
ASB 1276	NAJ	314	ACE	102							
ZH 1253	NHB	314	DF	100							
DV 1152	AZ	284	XL	99	NBU 2863	EV	523	ZCB	163		
GU 1105	NHO	286	NJS	99	PD 2864	AN	529	NCZ	145		
AGO 1090	NDG	307	VB	97	JP 2278	HU	505	DA	141		
DK 1088	ZBI	304	EC	96	FS 2214	EB	503	NCU	133		
NN 1084	AJJ	301	NTC	95	2111	TP	502	KY	127		
BI 1081	LO	800	US	94	2054	LP	493	YD	127		
TY 1057	RV	284	AZM	94	AO 2047	FC	420	GL	125		
ZK 1017	VG	294	HON	94	MF 1771	EO	401	ZLT	120	LD	1784
FD 968	ZE	284	HCY	94	ER 1744	NEY	401	JD	104	NRF	1749
LZ 932	ZF	278	HU	93	YL 1721	FI	400	AWI	64	DA	1478
DR 928	NBG	275	YK	90	IC 1673	YG	398	AT	87		
TS 921	NTK	274	HCH	88	ED 1633	RL	393	MDK	87		
N-E 914	SW	271	PP	87	KG 1147	BD	375	NHR	83		
ADD 887	NRZ	268	HRH	87	NGA 1145	SH	374	NDY	83		
DI 848	NPF	269	EP	85	WV 1053	XC	362	NE	75		
TZ 841	RX	287	HTT	85	GW 1041	GA	342	OK	73		
NNG 839	NXY	285	HOC	84	NGV 1012	DX	337	WI	72		
XT 833	ZPE	263	NPG	84	UN 872	YE	336	YM	71		
AIC 827	ZVI	262	NHQ	83	IW 858	NGC	334	WZ	88		
EN 745	NCE	251	AP	81	UT 834	OM	322	SO	83		
XZ 723	OM	248	NWP	81	NGR 821	LY	321	ZKI	80		
NDF 719	ABS	241	ZEH	79	WT 810	HAG	286	GI	66		
NKA 716	NGP	241	KX	77	WV 810	ZIT	280	LW	58		
SN 699	AKS	237	ZJ	77	XJ 801	DR	270	ZG	58		
LN 694	OT	234	ZSV	77	DY 800	HE	256	GB	55		
Su 685	UW	222	GF	76	KP 754	ZZ	255	NCO	55		
AMW 688	ZZ	220	GG	72	JX 748	UX	244	NEA	55		
BW 684	ADC	219	HJT	72	NHG 730	UH	243	ZHU	44		
IN 642	NMY	208	NOK	71	JK 711	HOB	220	FM	41		
KR 623	ARV	206	IR	70	PG 827	BE	219	LG	35		
NDN 618	EF	206	UE	70	FE 816	TU	216	NGJ	32		
FO 578	HN	198	OG	68	WV 809	OR	211	JY	17		
ATW 571	NVW	194	YQ	68	VG 800	DC	198	ML	15		
ON 568	ZRJ	193	NGK	64	YF 686	NGX	179	XO	12		
ZJG 554	RI	188	NJO	64	NHA 588	NDV	178	ZCU	11		
NCL 551	SG	182	KE	63	NHK 679	ZGA	176	9NPS	4380	9EJ	1558
NBJ 472	NSA	157	UX	52				9QJ	2010	9NDC	157
ATM 470	VE	158	ZKK	50							
LM 447	ZBC	158	NCC	45							
NMO 445	HM	159	AWI	45							
NXT 434	KH	149	NIC	45							
ID 429	NO	149	ZU	37							
NCS 427	NEH	145	AC	36							
GL 410	NGC	144	DF	36							
NCX 407	NSW	143	ZIS	35							
SS 402	NNE	141	HSI	30							
LL 400	EV	142	OV	28							
NHG 399	RR	158	AKR	33							
IT 395	ZQ	157	ZAP	33							
ND 379	ZB	156	BTP	32							
NEH 373	TR	154	KT	26							
NWT 378	NRO	153	JO	26							
AIM 378	BG	129	RG	26							
EA 359	NCK	129	DX	25							
FL 359	OZ	128	RD	23							
XI 359	JK	125	NCS	23							
NHM 358	TW	125	AW	22							
NYD 358	WC	124	TL	20							
ALM 355	NAT	124	ZGZ	20							
NTU 355	NMS	122	IX	11							
DH 355	YY	121	RT	7							
NDW 352	NHC	121	KH	746							
VK7 CW											
VK7 RECEIVING											
L70107 G. Mutton											
VK8 CW											
HA 980											
VK8 PHONE											
L70107 G. Mutton											
VK9 PHONE											
L70107 G. Mutton											
VKL PHONE											
L70107 G. Mutton											
VKL CW											
ZL 1400 4BE											
P2 CW											
9EJ 474											
LATE ENTRIES											
VK — 2HC, 2AGZ, 2AUX, 3QG, 3ANM, 3APP, 3NAH, 3NNX, 4DT, 4LF, 4MG, 4QT, 5FM, 5MS, 5UB, SWJW 5NSI, 6MU 6SM, 6NQO, 6NHX, 6ZOD											
COMMENTS FROM CONTEST MANAGER											
Participation in the annual "Friendly" Contest was well up with 1068 valid logs received.											
VK5/6 put in a sterling effort to once again take out the trophy, generously supported by Novice and Limited entrants.											
The new formula has been applied and for statisticians the difference between first and second is only 25 average logs and between first and third 26 average logs and if they were from Full Cells the result would have been different.											
Some Divisions did not take advantage of the separate phone and CW logs being counted as two entries for column 6A. Also for the first time SWL logs counted for their respective divisions.											
Some confusion was caused due to the mis-printing of the rules and also the late delivery of July 19 Amateur Radio in some States, but the majority of participants entered into the spirit of the "Friendly" contest.											

Log presentation has improved dramatically this year as supported by some divisions distributing well designed front sheets to entrants.

Especially noteworthy was an entry from Frank VK2ZI who is totally blind. His log was a verbal one on tape and I was delighted to be able to score his entry for him. All but one contact was through an Oscar satellite.

From my own observations during the contest there was a very friendly atmosphere evident but it did not flow through with all entries! The comments and threats I received, with a small minority of logs, showed some amateurs in a very poor light. I cannot accept any blame where an entrant fails to read the rules before entering a contest!

I will however, apologise for being a little late with the results but I was absent from Orange due to work commitments for the best part of three months from September.

The 1980 "friendly" contests will be even better and bigger than before and I am looking forward to an even larger number of entries. Thank you for supporting your divisions and the memory of those who paid the supreme sacrifice.

NOVICE NOTES

BEWARE THE SWR METER

For many years standing wave ratio has been the yard (or is it metre) stick when antennas are discussed. This has been accentuated since the advent of CB. Many CSers would be happy with a piece of wet string if it showed an SWR of 1.1 at the end of a 50 ohm line.

The only thing that an SWR meter will tell you is how close the match between the feeder line and the antenna feed points is, it will not necessarily tell you if the antenna is resonant. If the antenna feed point happens to be the same as the impedance of the feeder line, the SWR meter will give you the right answer, i.e. that the antenna is resonant.

However, in practice, the antenna may have anything but the right feed point impedance. Indeed the rule is generally that it is not. Let us consider the quarter wave vertical for a moment fed with 50 ohm coaxial cable. With a very good ground plane, this antenna will have a feed point impedance of about 35 ohms at resonance. This will exhibit an SWR of 1.4 to 1. Often the SWR is lower, around 20 ohms or so resulting in an SWR of 2.5 to 1. Altering the length of the antenna to get the SWR down will shift its resonant frequency and decrease its efficiency.

You will ask: what about losses due to high SWR? A study of a chart in the ARRL Handbook in the chapter on transmission lines showing losses against SWR, will reveal that the SWR has to be quite high, 6 to 8 to 1, before these losses will cause concern.

Your next question is: how else do I do it if I can't trust my sacred SWR meter? The answer lies in three instruments. The

THE MAN BEHIND THE MICROPHONE



first is a tape measure. If you are erecting an 80 metre dipole, measure it, first of course, find the correct length and here again, there are charts in ARRL Handbook. The second instrument is that sadly neglected field strength meter. After all, you are only really interested in making your antenna radiate the best signal strength that can be achieved. The lowly field strength meter will do just this, indicate the relative radiation directly on the meter — and with no ifs or buts.

The third instrument is an antenna impedance bridge. This will tell you two vital values — the resonant frequency and the feed point impedance of your antenna. There are a couple of instruments on the market for about the same price. The Palomar RX noise bridge is the better of the two as it will also give the inductive or capacitive reactance of the antenna. With this instrument we can also determine the impedance.

Submitted by
Denn's Breitkreuz VK4ZEW/NMK ■

CQDX GROUP REFORMED

Owing to internal problems the CQDX Club has been reformed. Irresponsible and selfish behaviour on the part of a minority of the members, and the fact that the hams in the group have now found that they have little in common with the CB element, caused the whole concept of the club to be reviewed.

It must be pointed out that though the CBers in the club were amongst the most responsible of the members, there was little to offer them once those who wished to attain amateur status had done so.

MAN BEHIND THE MICROPHONE

Many stations recently worked VK2DFM alias Konrad HB9ARQ on his recent visit to Australia. Konrad hails from a small village in the eastern part of HB9 near Lake Constance and the Austrian border. He is QRV with an FT200 and tri-band beam on 10-15-20 metres and on RTTY with a modified model 25 teleprinter. Konrad enjoys activity on VHF and UHF with 16W SSB into a 10 element yagi on 2 metres and on 432 MHz using a 28/432 MHz transverter into a 19 element long yagi. ■

We have issued a new certificate and an honorary committee comprising VK3NDY, NNR, NOA, NNY, NAC, VEW, VGQ, NDO.

So far these amateurs are the only members of the new club. Three or four former members are being approached to rejoin, and a couple of others have been excluded.

The group is now strictly an amateur DX group. I am acting as honorary secretary but there are no other official officers and no dues other than THE WILLINGNESS TO CO-OPERATE WITH EACH OTHER.

The new rules are simple . . . go all out for DX by all means, but never forget to help others whilst you are doing it. The code set down by Paul M Segal still applies.

In short . . . give your mates a go . . . an old Australian tradition that seems to be less in evidence these days.

From Trevor C. Reid VK3NNR. ■

VHF-UHF

An expanding world

Eric Jamieson,
VK6LP



Forreston, S.A. 5233

AMATEUR BAND BEACONS

Freq.	Call Sign	Location
50.095	H4HHR	Honduras
50.098	PYTHM	Brazil *
50.010	HLSTG	Seoul *
50.022	HM2PR	Haiti
50.025	BY5RC	Jamaica
50.032	ZB9PW	South Africa *
50.035	ZB2VHF	Gibraltar
50.036	HCIJX	Qatar
50.038	KL7CDG	Anchorage *
50.038	FYTHM	French Guiana *
50.040	ZB9VHF	Edenvale
50.040	WARMHZ	San Diego
50.048	VE5ARC	Alberta
50.050	K8FV	San Francisco *
50.050	ZB3E	South West Africa
50.050	ZB8LN	South Africa *
50.050	VE5NAB	Alberta
50.055	WA8PEF	Illinois *
53.060	PY2XH	Sao Paolo
50.065	WB5RZL	New Orleans *
60.073	WT7KMA	Arizona *
50.075	HK3JF	Columbia (repairs)
50.076	WIAW	Connecticut
50.080	T12NA	Costa Rica
50.085	VE18IX	New Brunswick
50.090	WA8JRA	Los Angeles *
50.093	WA8FTA	Ohio *
50.098	K7H12	Arizona *
50.100	ZB9VHF	South Africa *
50.191	FO0DR	Tahiti *
50.193	WE8JD	Ohio *
50.194	KH6EII	Paarl Harbour
50.195	KG8HJ	Guam
50.198	JD7VAA	Marcus Island
50.200	KW4R	Japan
50.200	AL7C	Anchorage *
50.200	SB4CY	Ozark
51.002	ZL1BPN	Auckland *
51.009	YJ8PBW	New Hebrides
52.000	VK6OB	Caser Base
52.159	VK5KFK	Wagleyes *
52.200	VK8VFT	Darwin
52.300	VK8RTV	Perth
52.350	VK8RTU	Kalgoorlie
52.400	VK7RTT	Launceston
52.440	VK4ARTL	Townsville
52.450	VK2VWI	Sydney
52.500	JAI2GYI	Nagoya
52.500	ZL2VHF	Palmerston North
52.510	ZL2MHN	Mt. Climie
52.500	VK8RTW	Albany
52.600	VK8RTT	Carnarvon
53.000	VK8VFT	Mt. Lofti
144.010	VK2WI	Sydney
144.400	VK4RTT	Mt. Mowbullan
144.475	VK1RTA	Cannerra
144.500	VK8RTW	Albany
144.600	VK8RTT	Carnarvon
144.700	VK8RTG	Vermont
144.800	VK8VF	Mt. Lofti
144.900	VK7RTX	Ulverstone
145.000	VK8RTV	Perth
145.100	ZL1VHF	Auckland
145.150	ZL1VHF	Walkato
145.200	ZL2VHF	Wellington
145.250	ZL2VHF	Hanmer Valley
145.300	ZL2VHF	Christchurch
145.400	ZL2VHF	Dunedin
145.400	VK4RBB	Brisbane
145.475	VK7RTW	Ulverstone
145.800	ZL2UHF	Wellington
145.150	ZL1VHF	Walkato
145.300	ZL2UHF	Christchurch

433.250 ZL2VHF — Manawatu
18378 ZL2UHF — Wellington

* Denotes attended operation

No changes to the beacon list this month, other to include the attended operation beacon provided by David VK5KK. This has been heard over a wide area on 52.050 MHz, currently it is signing VK5KK with FSK, about 25 watts to a 3 element beam pointed north, and is located at Waseley about 60 km north of Adelaide, at David's QTH.

There are a number of other attended beacons operating in the U.S.A. but I don't propose listing these unless important. Full time beacons will be given priority in the very large list now being produced.

The correct frequency of the Geelong beacon when in operation will be 52.236 MHz, call sign VK3RGG. According to the Geelong ARC Newsletter, the frequency was determined with the WIA "Band Plan" in mind, which has been so arranged for beacons to operate between 52.3 and 52.5 MHz. The second figure after the decimal point is to indicate the State, e.g. VK3RGG on 52.330, the second 3 represents VIC3. VIC2 would be 52.32, VK7 52.37 etc.

NEWS FROM HONG KONG

Also from the Geelong ARC Newsletter is news of a recent QSO between Mike VK3ASQ and Tony VS3ES on 10 metres during which the following information was obtained. The Hong Kong allocation is 53.050 to 51.150 plus 52.025 + 10 kHz (CW) and 52.100 + 10 kHz (SSB). Power Max: 133.3 watts PEPS (50 watts AM). VS5FX runs low power to a GP aerial. VS8BF 50.10 VHF low power VS8EZ calls CQ (Voice via VOX) for 1 minute, listens for ½ minute when conditions are good, and monitors 26.490 MHz when on 6 metres.

NORTHERN HEMISPHERE SIX

Bill VK5ZU sends a lot of information from his column in OCT re six metres. Despite the approaching winter in the north, the band seems to have remained open almost continuously to exotic places. What follows is a condensed version of Bill's information, which is too vast for this column.

What took place between 15-10 and 15-11-79 as this is being written, all but eclipses those outstanding records from 20 years ago. Started 16-10 when VE worked JA. A few days later on 20-10 when VE1AN worked JA. On 21-10 was 28.40 MHz route to Europe, as well as a two-way contact with E12W confirming he was still able to use 50 MHz. On 21-10 WB2WIK worked 22 stations in Europe crossband, including SM7PUP with Gs and DLs making the rest. It has been noted as a result of these contacts that the strongest signals on 10 metres are not necessarily the strongest signals on 8 metres?

"But that was only the beginning! Almost daily a path existed to Europe from about 1300Z, followed a few hours later with continuous communications right across USA, E12W and ZB2BL are the only ones on 50 MHz in Europe and these have worked right across USA to VE1 Not bad for a barefoot FT820P! Active European countries include G GM GW DL EI ZB2 SM LA HB PAO OK and EA SB4CY beacon heard, but no sign of SB4EA."

"Another beacon that has been driving everyone crazy is that of FYTHM in French Guiana. The 50.038 MHz FSK signal from this station has been received numerous times, to over 50, but the operator is seldom available to contact. Other than to HCIJX north-south contacts have been rare, thus NPT2IPW (KZ5NW) failed to work all US states before departing the Canal Zone on 12-11. John HCIJX has 45 States to his credit!"

"If 6 metre stations are scarce in Europe because of allocations, and in South America because of lack of propagation, there is no scarcity in the direction of Japan, e.g. between Z31DZ on 2-11 and 0120Z on 3-11 NHC1 worked 83 JAs plus HL7HTG! At the same time at least one USA station had worked more than 700 JAs and going for the WAJA Preliminary Awards! Reports of working 40 to 60 JAs are common 5-11 and 6-11 prior to a move to Alaska and many stations got their 50th State. The opening was so wide spread that WL7ACY contacted 270 stations in 45 States! The following day propagation opened to

KH8 from as far away as VE1 KH6 AA notes working over 100 stations, some using his IC502 and whip antenna! KX6AQ was worked from the Washington area to provide a new country. KG6DX at Guam also worked.

"The conditions were so good during mid November that stations like WA2CAH worked several west coast stations with his IC502 and whip while WHGP worked a WB with 20 m wattmeters and a dipole, and WA1LOC made a mobile crossband contact with G3FBX. In summary, it's been wild, and continues to be, and will possibly surpass even 1958. We're having fun!"

It certainly reads like it. Our only hope is that something akin to these conditions will come to the Southern Hemisphere during March and April if it doesn't it will set another poser in the story of propagation as to the differences between the two hemispheres. Our misfortune is that we have no land areas akin to that of Japan to use a path with large masses of interested six metre operators. We have Africa to the west with limited six metre interest, and South America to the east further away and with Interes's unknown, particularly the west coast. Most interest from that continent seems to be the north-south path to the USA and that from the eastern areas of the continent. But let us not give up hope yet!

SIX MONTHS ON SIX

John VK5ZU has done some researching and provides the following to sum up the six metre activity during the last six months of 1978.

"June and July provided a few weak signs, the 'drought' broke briefly on 18-8 when VK3ADN and VK3VDO and VK3ZKZ were worked, between 0300 and 0302. August and September were not very productive, only brief and weak openings to VK4."

"Things improved a little in October Roger VK2AZT in Alice Springs was 5 x 9 at 1240Z on 26-10, also Graham VK2ZV earlier 5 x 9. Considerable solar activity was noted between 11-11 and 13-11 with lack of signs, JA2ODM and VK4ZAA in Brisbane being only brief contacts until 15-11, when a good open to VK7 occurred 5 x 9 contacts taking place with VK7KMG VK7ZG, VK7ZYT, VK7TW, VK7AE, VK7BC, VK7JZ and others from 0802

"The following day 16-11 VK4ZAY and VK4ZNG announced their presence from Townsville at 0300Z, then followed VK2ZV VK4UK VK2VZC, plus another group of VK7s, plus ZL2CD and ZL2BC. Conditions mainly unstable with considerable QSB. Quiet until 25-11 when Nevil's VK2QF at Mudjup was worked 5 x 9 at 0424Z, then G4UZ at Madjup on 27-11 Townsville stations again 5 x 9 into Adelaid VK4ZAY, VK4ZNG and VK4XZ around 0700Z, later VK4ABP (ex VK4ZBB) at Longreach was 5 x 8 at 0732Z, then at 0730Z band opened again to Townsville Barry VK4ZBJ reports an increase in 6 metre activity in Townsville with about 12 stations able to work on the band, at least 7 of whom have ready been reported. Strangely this year, the usual 'parallel' to Rockhampton has not been in good shape during the openings to the more northerly areas, perhaps it is undergoing repair or cleaning?"

"Seemingly improved conditions due to less solar activity produce some good signals on 26-11 — opening at 0302Z and continuing until 0502Z available were the following Gary HL7TG, Noel P29GA, Bill ZL2CD, Brian ZL2BFC JA7MEV, Barry VK4ZBJ, Joe VK4J4, Ian VK2ZIO, Adrian VK2YHJ Phil VK2ZZY. And on this day two Japanese stations YJ8BD was reported as hearing VK5ZG and VK5ZBU though YJ8 not worked in Adelaid a day earlier."

Following two quiet days, on 3-12 good signs from VK7KZT and VK2ZKZ preceded an interesting opening on 4-12 starting at 0700Z with VK2BWD and VK4IRK, plus many other very strong 2Kbs. The same was extremely strong and varied from Gippsland VK3 stations into Adelaide VK3CCM and VK3YKA. During this opening Andy VK6OX could be heard on backscatter from Carnarvon working into Sydney and areas east of VK5. Finally at 1100Z he worked into VK5."

On 5-12 VK2ZZV VK2ZKZ and VK2ZIF were worked then VK4ACE. Dore is a new station at Mt Isa called in around 0600Z at 1150Z + opened

to the regulars in VK7. On 6-12 and 7-12 only opened to VK4ACE and the Townsville gang, and on 8-12 to VK7 again, plus VK3CM. On 10-12 very quiet during day but open to the VK7s again at 1320Z, with just enough time to say "Good evening before the band shut for the night". With few exceptions condensers were such that signals would reach 5 x 8 then disappear quickly. The Japanese stations have been weaker, though consistent at times.

On 11-12 daylight hours very quiet, one pleasant contact was with Lance VK5ZBC, the first in many years, the DSO only with VK5RD was on "Adult Modulation" with excellent signals all round!

12-12 0512Z VK4ACE followed by VK4JH, plus others, band staying open until 0742Z to VK4. At 0850Z Graham VK5GB had QSO with VK4 and was in Adelaide. At 0912Z VK4 working VK3, and VK4RD's RITTY good copy on 32 065. 0915Z VK5ZDR worked VK7ZLB, at 0940Z Ray ZL2KT worked several VKs at 5 x 6/8. At 1030Z VK4 to VK7.

"13-12 12 Townsville beacon 0500Z, followed by Hal VK4DO chugging Ross Hill numbers, at 0636Z to VK2FX, 0738Z VK4ZTV, then Bill VK4ZWH and John VK4LAA. At 0918Z Geoff VK4GF heard calling him, then he was worked in Adelaide 5 x 9 0948Z, and attempts made to hear Geoff's two metre signal. Considerable activity between eastern States and Z-

"14-12 Nothing until 0900Z when VK5AMK worked Tony VK5BVY at northern end then band opened to VK4ZBZ, Mt. Isa then back to VK5WV, VK5OX, VK5OM, VK5ZED, VK5KZ and others. Beacons from VK4, 2 and 6 during opening."

Thanks for the fill-in up to this date John, which now allows me to continue with some information to conclude the chapter from my own log.

"18-12 VK4ZBZ at 0443Z and VK4ZAZ at 1128Z, nothing else. 19-12 VK5ZC, VK4ACE 5 x 9. Continued to Riddle the fingers until 23-12 when VK4ZLB came in really early at 2337Z, followed by a series of other VK4s and VK3s, but the VKs mainly confined to the far north areas. At 0920Z VK5EF 40 dB over 8, so strong in fact we just had to try 2 metres with him, but the absence of any short skip stations relieved the MUF was not high enough. At 0512Z JI4ERG heralded the first opening to JA for some time, this time as seen by Es. They were mainly 5 x 9 and covered JA1, 2, 7, 8, 8 areas.

Of particular note on 23-12 were very strong (well over 80) signals from Japanese stations on 50 MHz but not reaching 2 MHz. The JAs were working themselves via a strong SW opening in their own country — it was interesting to hear them calling the own call areas. Hal, VK4DO reported working 1857 JAs from February to November 1979! Incidentally, the JAs on 23-12 worked in VK1, 2, 3, 4, 5, 6, 7 and 8 as far as we know, with signals into VK5 being the strongest. Not many call areas left for them to work that day!

24-12 JA1 to 9 areas, VK4ZAZ, and VK5BF, plus VK5ZBTX advising he will be shifting to Sydney from Moree in 1980. Speaking to Graham VK5GB on 28865 I asked frequently he advised Brian VK5BVY sent me a 2 metre beam for the storm, and that Brian would be going to P23 (Rabaul) for a period of 3 years starting during 1980. Graham advised ZL1, 2, 3 and 4 had been worked from Darwin this year, plus P29 he said. He was hoping to work the Balu DX-pedition during the next few days up to E-180. The VK5BF beacon is at present running low power since the storm.

25-12 Started off at 6 x 8, probably everyone on Christmas Day. At 0736Z opened to VK4, the VK5ATN beacon still on. At 0847Z VK4ZGZ, 0852Z VK5KZ, 0942Z VK2A2Z plus others, 1104Z VK5ATN again on the beacons also VK3BH5, then just to complete the backlog also VK5XYY. In a busy worked on 14400. Also noted that H44PT worked VK4JB at 1645Z for first H44 to VK4 contact — I am told.

26-12 Early start at 0135Z to VK4DO, still chasing numbers, gave me 56741. At 0142Z VK5EF so strong again that 5 metres was to be tried! 0204Z VK5ZED and VK4 8000 kHz interspersed throughout the day until 1730Z. Report received that Les VK3ZBL had heard a VK8 (60FT) Melbourne on 2 metres 27/12 Open to VK4ZNG at 2033Z 5 x 8. We then had a spell until 29-12 when Joe VK4JH

came through 5 x 8 at 0025Z, then VK4ZBJ, the remainder of the day was a rest period from Es!

30-12 opened early with VK4ZL at 0047Z, then an interesting set of conditions produced very strong signals from VK3 northern areas from 0050Z, with VK3ANP, VK3YH, VK3OT and VK3ATN predominating. Late Ken VK3AKX was heard at 0138Z at 5 x 4. These short skip conditions caused the VKs stations to scurry on to 2 metres because Es were bringing in strong signals from VK4 at the same time, but no success. Ted VK2ARA was grabbed at 0145Z 5 x 9. Open to VK4 for most of the day, at 0942Z VK5GF 5 x 9 again, followed by 5 x 9 signals from VK6ZKQ, VK6ZED, VK6VB, VK5RO, VK5ZDR and others. At 0930Z observed VK4ZJB working VK5WV and others 5 x 9 reports. Tony VK5BVY advises he could be on 432 MHz soon.

2-1-80: Probably the last of any worthwhile Es for this period, opening at 2316Z to VK3AS1 VK5ZRU and VK2BKH. John VK2BKH almost always alerts us the band is open because his strong CW signals herald the opening! At 1140Z VK7ZTF and VK7ZTA, and the same two stations again at 1223Z just long enough to say "Goodnight". Lance VK4ZAJ worked VK3CBXT, and reports came through during the opening that WSKJ had worked ZL on 31-12. Also a report from Gerry VK5ZZZ that the DX-pedition to Ball, YB9/X9 had worked 160 JAJs on 8 metres up to 2-1 but no VKs — that's not surprising considering the lack of Es from the Darwin plus area this year

SIX METRES FROM BURBURY

A newcomer to six metres, Graham VK5ZGS, has been thrilled with his workings to date, and I can understand why. On 10-10 he obtained an IC462, and the following day had his first contact to JA from his car, using the IC502 barefoot to a whip antenna! When I think of the years to took to work my first JA... .SLP. At home Graham runs the S02 into a 25 m wire line and a bow-line antenna with 8 dB gain. On 24-11 mobile between 0640 and 0645Z worked VK5YA, VK5ZDR, VK5RO and VK5ZPE the latter up to 5 x 8 on the handbag! From the home shack on 3-12 worked a string of VKs plus heard VK5OT and others. 4-12 VK4 barefoot And so it goes on.

Good luck Graham, hope you passed the CW in November, and also hope this won't mean you will forsake the VHF bands!

A LOOK ON TWO METRES

One might be forgiven for thinking there is no two metre activity with so much happening on six metres, but this is not the case. Looking around the country, I now confirm via the VK5 VHFA Group Bulletin that a new two metre internal record has been established there between Andy VK5DX in Carnarvon and Ade VK5XY in Albany on 144.100, during October on CW, and later to be repeated on SSB on 21-11-79. Distance 1195 km. Perth stations are reporting reception of the Carnarvon beacon VK5RTT on 144.500 MHz.

VK5C5 STIRS THE VKS

From his hilltop location near Piccadilly in the Mt Latty Ranges, Dave VK5CK using a pair of stacked 13 element beams (as in SLP) and about 55 watts has certainly been stirring up the VKs in all directions. The following details are given in the hope that VKs won't despair that their efforts go un-noticed, but do remember there are other VK5s available too, but not from such a super location, therefore, they will probably be weaker!

18-11 starts off this saga, most contacts unless otherwise noted have been on 144.1 or thereabouts, and signal reports mostly the same both ways. So our old friend Roy VK5AHL takes the top spot at 5 x 9 +, 5 x 8, 5 x 7, and again on 19-11 21-11 VK5CHP 5 x 6, VK5ZHP 5 x 2, 26-11 VK5ZHP 5 x 6 and heard a VK7 working a VK3. 27-11 VK5AXV 5 x 8, 5 x 8, same again 28-11, 1-12 VK5XY 5 x 8, VK53TN, VK5AJX both 5 x, VK5ED 5 x 1, VK5BL 5 x 1, heard VK5ARVA 6-12 VK5VII 5 x 8, 18-12 VK5AXV 5 x 6, 21-12 VK5AXV 5 x 7, 22-12 VK5ZGQ 5 x 5, VK5BFY 5 x 4, VK5ZHP 5 x 1, VK5C1V 5 x 1, VK5VNM 5 x 5, VK5C1VY 5 x 1, VK5VLY 5 x 7, VK5AXV 5 x 8, plus a brief CW contact with VK5UJL 5 x 7.

25-12, VK5ATN 5 x 5, VK5WVG 5 x 5, VK5EE 5 x 5, VK5AXV 5 x 9, VK5ATN 5 x 7, VK5OK 5 x 5, 26-12 VK5YPD 5 x 1, VK5AXV 5 x 8, VK5YH 5 x 2,

VK3ZBJ 5 x 8, VK5ZE 6 x 7, VK3BFY 5 x 6, VK5ATN 5 x 5, VK5YLH 5 x 8, 28-12 VK5ATN 5 x 3, same on 30-12? And that sort of thing will still continue!

It is interesting to note that daily contacts both early morning at 2100Z and at night 1100Z have been made between a number of VK5 stations and VK5ATN on 144-100. Signals for some reason or other have not been very strong, but they are always there. Those part clipping have been VK5CK, VK5RO, VK5ZDR and VK5LP, occasionally others. Most reports have been from 4 x 1 to 5 x 3, with somewhat stronger signals at 500-432 MHz signals have been heard from time to time between VK5ATN and VK5LP, but only weak, on CW.

OTHER TWO METRE NEWS

Few beacon VK5RTW copied in Adelaide 1000Z on 18-12 at S1. New Albany stations on 2 metres are VK5ED, VK5ZKJ and from Denmark further west VK5NL. On 14-12 Wayne P29ZWW worked into the 2 metre repeater at Townsville, later made contacts via Ch. 5D and on SSB 25-12 VK5MKA heard VK5VF beacon on 144.800 or 0830Z, so it looks as though the path on 2 metres to Perth could be just around the corner once more.

29-12 VK5ATN worked four VK3s on 432 and also VK5ACB on 1295 MHz, CW both ways. This latter contact a bit difficult as VK5ACB was keying his FM carrier. . . . 2-1-80 VK5ATN worked VK2DGW in Griffith who had an IC205 to 5 element beam at 15 feet!. . . Roy VK5PL QTH continuing to find the pair of 13 element beams here at SLP do very well on 2 metre working backed up with the marshhead pre-amplifier! I car work anything or anyone can hear

TROUBLE DOGS REPEATER

From the "Propagator" comes this months bad luck story: "The Wolongong repeater is on Ch. 5. First a savage storm caused damage to the receiver, transmitter exciter, and the control unit. Five transistors had to be replaced, amazing damage had not been worse than deranging some grass in the vicinity of the transmitter cubicle had been burnt by lightning. A large tree nearby had been bent on one side.

"Two weeks later another storm took its toll of transistors, this time in the control unit!

"Last week's hailstorm which hit Sydney had its epicentre in Robertson. The force of the hail holes in the top of the transmitter cubicle, allowing water to penetrate. The water got into the decoder for the auxiliary receiver used for the relay of the Sunday broadcast. A special ground stake has been installed in an effort to reduce currents in the lightning lead due to surge currents from the lightning".

Apart from a fair smashing the whole assembly there doesn't seem much more could wrong with the installation. Let's hope your troubles are now behind you, boys.

SECOND ARRL EMME COMPETITION

Gerry VK5ZZZ sends me a copy of the results of the above competition, conducted on 144, 432 and 1295 MHz, with world-wide participating stations. It was won by K1WHS who scored 70,200 points, heard 47 EME stations and contacted 38 of them, on 144 MHz only and using a 160 element collinear 133 stations from everywhere participated, the average QSO for single operator stations was 13.1. The sat-up at the winning station on consists of the 160 element collinear feed with 7/8" helix, a ZN21 MOSFET preamp mounted at the antenna with a 14 dB dipole figure, homebrew converter and 75 MHz homebrew transmitter used 6300-4CX30A-8877 running 1000 watts. Next year they plan a bigger and better antenna!

Number two position went to W6LUA, one of the few with 144 and 432 capable links. His preamps both use DXL 3510A GaAs FETs with 0.5 dB noise figure. The top 432 MHz honour went to PFBT who used sixteen 21 element yagis, an HP EHT1101 GaAs FET preamp with 0.3 dB noise figure, and a pair of 40X250Rs.

Pleased to see Chris VK5MMC was able to participate, using his 6.6 metre dish to run up 3600 points with 8 stations heard and worked.

Some stations are very well set-up when one peruses the list. I note ZE5JJ has the 10 metre dish working, whilst JA4DR has a 12 metre dish

OPPORTUNITY to obtain back copies of AR

To make space in the new executive office it is proposed to deliver for paper recycling all EXCESS COPIES of AMATEUR RADIO accumulated from MARCH 1972 to DECEMBER 1977 inclusive.

Anybody interested in specific issues should apply at once to

PO BOX 150,

TOORAK, VICTORIA 3142
with lists of requirements and

PAYMENT OF 30 CENTS
per copy to cover postage and
packing.

Regrettably some issues of these ARs will not be available, being out of print. Orders will be processed as time permits so some delay in despatch must be accepted.

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2.16	¾	16	3	No. 3007	\$1.16
3.08	¾	8	3	No. 3010	\$1.40
3.16	¾	16	3	No. 3011	\$1.40
4.08	1	8	3	No. 3014	\$1.56
4.16	1	16	3	No. 3015	\$1.56
5.08	1½	8	4	No. 3018	\$1.75
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no justification for ANY station to have a prolonged contact with a rare station — do the right thing and share him with the multitudes!

So I feel if you bear all of the above in mind there could be many stations sharing some good contacts, particularly if P.A.T. see fit to join with other administrations and recognise the need for Australian amateurs to be able to share in some way the 50 MHz area at least by 1st March 1980!

Closing with the thought of the month "In the game of life, as in other sports, you can pick up the winners — they're the ones who aren't complaining about the officiating".

73, The Voice in the Hills.

QSP

AMATEUR LICENCES

As at 30th June, 1979, there were 12,062 licensed VK amateur stations of which 2,974 were Novice, 3,108 1-metre and 5,956 Full Calls for States, NSW led with 4,043 and Victoria 3,425 NT showed 65 per cent as Full Calls, ACT 63 per cent and the national total 49 per cent — the lowest being Queensland with 44 per cent of the national total Novices were 25 per cent of the highest percentage in the NT at 30 per cent. Limited calls showed up as 26 per cent of the national total, ranging from 31 per cent of the Victorian total down to 16 per cent of the ACT total. At the same date licensed CA stations on HF totalled 173,507

TF LAND

In a letter to AMSAT (September 1979) Kristian TFSKX briefly outlined the level of activity in Iceland. There are approximately 100 members in the national society, of which 20 to 30 are active on HF, VHF or in special fields of amateur radio such as RTTY, etc. It may pay to also keep a listening watch on OSCAR satellite frequencies from time to time, as Kristian and fellow amateurs are becoming active using OSCAR.

One wonders at the mechanical problems that must confront stations like YU2RCC who uses sixteen 23 element yagis on 432 MHz — and the complexity of feeding the monster! Even K2QR had one station or his single 15 element yagi on 2 metres! And what about WA4WD who ran up 12000 points using a mere 46 element J mezzani!

RADIO HAM BUREAU

A few stations around with some very high scores, but the facility of being able to commence at any number up to 1000 makes some of the early high numbers rather suspect. I note VK3ATH has been making a good effort to gather numbers and using several bands to do so. He has managed to stir up some interest in VK5 to get some stations on night and morning at least on 52 and 144 to exchange numbers, but the conditions have been fairly poor so it has been a struggle at times.

In an effort to ensure the Contest continues I hope those operators with lower scores will send in a log particularly as the Contest Manager has suggested a photocopy of your log will be acceptable — this to me is a very sensible departure from previous requirements.

THE EQUINOX

Those keenly interested in six metres will be looking forward to the March/April period. In particular in the hope we may have a chance to share in some of the outstanding conditions already enjoyed by stations in the Northern Hemisphere. It is clear that March/April last year was better than September/October last year, and in the Northern Hemisphere it is the other way round, September/October seems to have been superior to the earlier equinox. This seems to suggest conditions are more favourable during the autumn than the spring, but only time will tell.

Just a few suggestions which might help to pave the way for an increase in exotic contacts:

- (1) If you can monitor between 30 and 50 MHz watch for a flaring MUF which will be shown by overseas commercials becoming apparent in that

area. Even two-way radio stations are audible from U.S.A. and elsewhere, and are a good guide to possible contacts. These will mostly be heard during our mornings, say from 2300Z through to perhaps 0600Z or even later.

(2) If the 40 MHz+ area is active, keep a close watch on 50 MHz with the beam to the north east. In this position you will also hear the JAs if they are strong enough to work. But hearing signals on 50 MHz doesn't always mean they will be on 52 MHz. Then help yourself to stations not that high. And don't cheat, wait and work stations on 52 MHz, not 50 MHz. Remember, most overseas areas are dead set against out of band contacts and wide publicity about the VK position has been given in overseas publications — you may not care to have your name on the ARRL and SMIRK black-list!

(3) When the band is quiet operate on 52,050 by all means — that was the purpose of originally deciding on a calling frequency and it is known overseas. BUT, please do leave a few seconds break between overs to allow another station, perhaps from an exotic area, to call in. If the band is in demand, then after establishing contact on 52,050 move away to allow others to monitor the frequency. The worst thing you can do is to use 52,050 for a crossband contact and so block the frequency for lengthy periods. The only exception might be if you are using VOX so there will be periods when you and your listening station will have a chance to hear another station.

(4) Perhaps most importantly, if you are lucky enough to get a contact with a rare station, keep the contact SHORT, remember there will be many other stations wanting to work him, and the conditions may only remain for a few minutes. All you need for a contact is to exchange signal reports, plus names, a request for a QSL, then sign off, the whole exchange need only take 1 to 2 minutes. This way you won't have other stations breaking in and generally frustrating others and getting a bad name on the band. There is absolutely

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

Lot 52, Russel I Ave., Woodend 3442
9th January, 1980

The Editor,
Dear Sir,

I am writing to you with an appeal! The appeal is to ask if there is any radio amateur reading this who might be able to help me in learning about RTTY. Just recently I obtained a Model 15 to sprinter and I set it up to the point where I can copy reasonably well. However I do need some more help in getting it all to work very well. I am at a disadvantage in that I live in a remote location and have no effective means of contacting anyone else except by letter. There is no Wireless Club where I can see other amateurs and learn from them. This is also one of the reasons that have lacked the confidence and the knowledge to go for my ticket.

We still have visited the "sheiks" of some amateurs who have had virtually no contact with any amateurs for some time now and I have never had an amateur come here and visit me.

Terry Robinson Z110B

5 Lytton Ave. Lindfield, NSW 2070
26th November 1979

The Editor,
Dear Sir,

Would you kindly publish in our magazine this note of appreciation.

have just returned from a yachting trip in which I was navigator/radio operator. Just before typhoon T9 commenced to build up we lost our engine due to mechanical failure and when the storm started we ripped our mainsail and later our backstay bracket failed so we were without propulsion.

would like to thank all those men who assisted by sending messages to the captain's YTL to obtain replacement parts for the engine and to my XW, to advise her of the details of our rescue by the United States Navy and Coastguard. I am especially grateful to the operator who ran the Marine Operations Centre in Canberra to advise them of our "Mayday" calls and who also rang a well known amateur friend of mine in Sydney.

My only disappointment was to find that an amateur I "knew" from previous contact did not know how to react to a mayday call but casually remarked to the station he was working that he had heard a "mayday" which appeared to be coming from New Zealand and then went on rag chewing.

This contrasted to the American hams who kept watch on my frequency and chased off anyone who started transmitting within 5 kHz of me [Oh to have ten kilohertz all to myself now that I am back!] The prompt amateur in our rescue was K6G-BK who remained on watch for 48 hours except for the period from 0200 to 0900 LMT on our first night.

Thank God for the radio amateurs.

Yours faithfully,

Gordon H Sanders VK2DGS

"Bonnie Braes", Wattlemedina, NSW 2741
21st December, 1979

The Editor,
Dear Sir,

I am writing in support of Mr R. J. Somervilles letter in December AR suggesting that past articles of an instructional nature should be made available in book form.

Having recently gained the AOCOP after studying on and off for some years via the WIA course, which was until recently about the only guide as to the scope of knowledge required, I find that there seems to be a great lack of really comprehensive basic training material. To some this may seem strange since there are many books of basic theory and elementary that, but unfortunately most are trying to cover a complete radio course

in a couple of hundred pages or less — an impossible task.

Many may argue that it's all in the RSGB or ARRL Handbooks but to me they leave far too much reading between the lines to be classed as satisfactory training texts. I would have hoped that the continued issue of new editions would have done much to remove those vague old explanations that have been rehashed for many many years.

The ARRL is however to be commended for many of its other publications, an outstanding one of which is "Understanding Amateur Radio". This practical little book is a taste of what the Handbook should be and is an invaluable aid for AOCOP candidates. Another fine book with a much better treatment of electronics but not radio is "Basic Electronics" by Grob.

Undoubtedly the best general text I have seen is "Electronic Communication" by Shrader. I thoroughly recommend this book to all such as myself who have not had the good fortune to be able to collaborate with someone trained in communications radio and have had to learn it all from books.

Judging from the number of novice calls filling up the callbook, there should be plenty of incentive for those better informed WIA members to get together and do something about this situation. I can think of no better way to justify those membership fees than enhance the reputation of the WIA at home and abroad than to put out a really worthwhile training textbook. Why leave it to the Yanks, they may have thirty times the numbers but are they thirty times as smart? Why not simply ask or offer a small incentive to members for submissions of suitable material — the results may be surprising. Remember, all those call signs have had to pass an exam.

Perhaps a good starting point for those contemplating doing something would be to give some credit to men like Galvani, Ampere, Faraday and Hertz. Their discoveries have laid the foundations for a massive part of the technology that has made our age unique.

I would also like to take this opportunity to thank those unsung heroes who have devoted their time and talents to produce the slow morse practice session. Without their help my AOCOP would have been extremely hard to get. In terms of simplicity of equipment, width of spectrum and communications effectiveness, CW still seems unchallenged. With this excellent service provided each night I wonder at that long list of limited calls. Is the modern amateur to be merely an extravagance Cesar or someone with some knowledge and understanding of the privileges he enjoys.

The RF spectrum is a natural resource and with a sound standard of knowledge to indicate a genuine interest in radio, I see no reason to provide further evidence to justify our occupation of the amateur bands, especially since forward looking Governments should be looking at satellites and that massive undeveloped microwave segment for domestic and international communications.

Yours faithfully,

Graham L. Dunn

5th December, 1979

The Editor,
Dear Sir,

I would like to strongly support the sentiments expressed by VK2ED in his letter in November AR.

Like VK2ED I am not interested in entering EITHER Phone OR CW, I wish to enter both and meet as many of my old friends as possible, a number of whom served with me during 1938-45. The abolishing of an Open section does appear to be influenced by the "Down with CW" group, but I can well remember contacting many of those amateurs, who later paid the supreme sacrifice, on CW during 1938-39 era, probably because I could not afford to go on phone anyway.

Other factors annoyed me regarding this year's contest. If one relied on AR for rules concerning the RD contest, it would have been difficult as my July copy of AR arrived on August 21st and having arrived back from overseas was on August 6th I had no idea when the contest was to be held. I listened to the pre-contest broadcast from

VK2AWM and little significance was attached to the true meaning of the contest, the role of honour in whose memory the contest is conducted, was not even read out. In fact, from what I heard, let us change the name of the Contest and say "The Friendship Contest".

Might I suggest that in future years details are not left to the last minute — we could well have some strike to blame again for late advice of details. An outline be given of what the RD contest is all about, that an open section be included, that Novices be encouraged to enter the open section, even a low power section on the amateur

We owe a lot to those amateurs — and many others — who died during the 39-45 conflict, let us remember them on this occasion each year and give those members who participate the opportunity to enter those sections and modes that give them most enjoyment, if they choose to have the minimum permissible contacts and put in a log (as I did this year) — good thing — if they want to go flat out for 24 hours for a large score (as I have done in the past) — all, the better. But let us encourage and advertise the RD Contest.

Yours sincerely,
Jim Andrews VK2SO

8th December 1979

The Editor,
Dear Sir,

ENDEAVOUR AWARD — ROYAL NAVAL AMATEUR RADIO SOCIETY

Our award, the "Endeavour Award" has also been going nicely, thanks to AR and I have been advised we have issued 52 awards since Easter. There have been a couple of minor changes to the rules of the award to permit QSOs on VHF and to award double points for VK2BNR, HMAS NIMRIBA. Also VK2BNR counts double points for the "Mercury Award" as do the two other stations operating from Naval establishments — GB2RN/4H4MRS — HMS BELFAST and GB2RN/3QZL — HMS MERCURY

To gain an idea of the size of RNARS we are currently a localizing numbers in the 1420 series

We hope to gain a few more members and also interest a few YLs, especially those who were in the WRANS

If anyone has a Creed transmitter for sale we would be grateful if you could let us know.

Terry R. Clark, VK5ALG, RNARS 2196
Australian Branch Manager — RNARS
P.O. Box 637 A, Hunter, N.S.W. 2540

EDITOR'S NOTE: Please see "Awards Column" for the updated rules.

CONTESTS

Wally Watkins VK2DEW
Box 1065, Orange 2800

February:

8-10 John Moyle Field Day

16-17 ARRL DX CW Contest

23-24 French Phone Contest

23-24 RSGB 7 MHz CW Contest

April:

26-27 Helvetia's Contest

May:

24-25 CQ WW WPX CW Contest

ARRL DX Contests, full rules and specimen front sheet and log sheet available from FCM for SASE
Watch for 2WBK/P47, CW and SSB on 10, 15 and 20 during March 10-24, 1980

COMMONWEALTH CONTEST 1980 — "BERU" — RULES

JUNE:

1300 GMT Saturday, 8th March to 1200 GMT Sunday, 9th March

MODE

CW only, 3.5 to 28 MHz. Call is QO BERO.

Eligible entrants are radio amateurs licensed to operate in British Commonwealth call areas as listed below.

SCORING

5 points per contact exchange (RS1 001 etc), 20 points for 1st, 2nd and 3rd contact with each call area other than one's own, on each band.

G, GW, GD etc are counted as one area. Contacts with one's own area do not count at all. Penalties are imposed for unmarked duplicate contacts, incorrect calls and reports.

LOGS

Separate logs are required for each band showing call-area.

1. Date and time GMT
2. Station worked
3. NR sent
4. NR received
5. Band
6. Leave blank (for checking)
7. Contact points claimed
8. Bonus points claimed

Each band log should be separately totalled and should include at the end a check list showing areas worked and number of contacts per area. Separate band totals should be added together and the total claimed score entered on a cover sheet giving particulars of station, QTH, equipment, power, antennas, and a declaration that the rules and spirit of the contest have been observed.

Entries may be single or multiple band. Single band entries should claim contacts on one band only, but submit details of contacts on other bands for checking only.

Entries should be addressed by AIR MAIL to D J. Andrews G3MWJ,
18 Downes Crescent, Uckfield,
East Sussex, Eng. and, TN221UB.
Closing date, 12th May, 1980.

COMMONWEALTH CALL AREAS

The following call areas are recognised for the purposes of scoring in the 1980 Commonwealth Contest:

A2 Botswana, A3 Tonga Is., A5 Bhutan, C2 Nauru, C5 Gambia, C6 Bahrain, G/G/B/G/D/0/1/QJ/GM/GU/GW

H4 Solomon Is.

J3 Grenada, J5 St Lucia, J7 Dominica.

P2 Papua New Guinea.

S2 Bangadesh, S7 Seychelles

T2 Tuvalu, T3 Kiribati

VE1, VE2 VED, VE4, VE5, VE6, VE7, VE8, VK1, VK2, VK3 Lord Howe Is., VK3, VK4, VK4 Willes Is., VK5, VK8, VK7, VK8, VK9 Christmas Is., VK9 Coco Is., VK4 Norfolk Is., VK9 Heard Is., VK9 Macquarie Is., *VKO/VPA Antarctic c., VP1, VP2A, Antigua, Barbuda, VP2E Anguilla, VP2K St Kitts Nevis, VP2N Monserrat, VP2S St Vincent, VP2V British Virgin Is., VP8 Turks & Caicos, VP8 Falk and Is., VP8 S Georgia, VP8 S. Orkney Is., VP8 S. Sandwich Is., VP8 S Shetland Is., VP8, VG9 Chagos, VR1 British Phoenix Is., VR8, VS5, VS8, VX9 Sable Is., VY1 Yukon, VYD St Paul Is., VU India, VU Leccadea Is., VU Andaman & Nicobar Is.

VJ

ZB2, ZC4/BS4, ZD7, ZD8, ZD9, ZE, ZF, ZK1 Cook Is., ZK1 Manihiki, ZK2 Nuku, ZL1, ZL2, ZL3, ZL4 ZL Auckland and Campbell Is., ZL Chatham Is., ZL Kermadec Is., ZM7

SB6/3B7 Agalega and St Brandon, SB8 Mauritius, SB8 Rodriguez Is., SD2 Fiji, SD6 Swaziland

457

SD3, SH2, SW Samoa, SX5, SZ4

EY5

TP8, QC7

EP8, GR

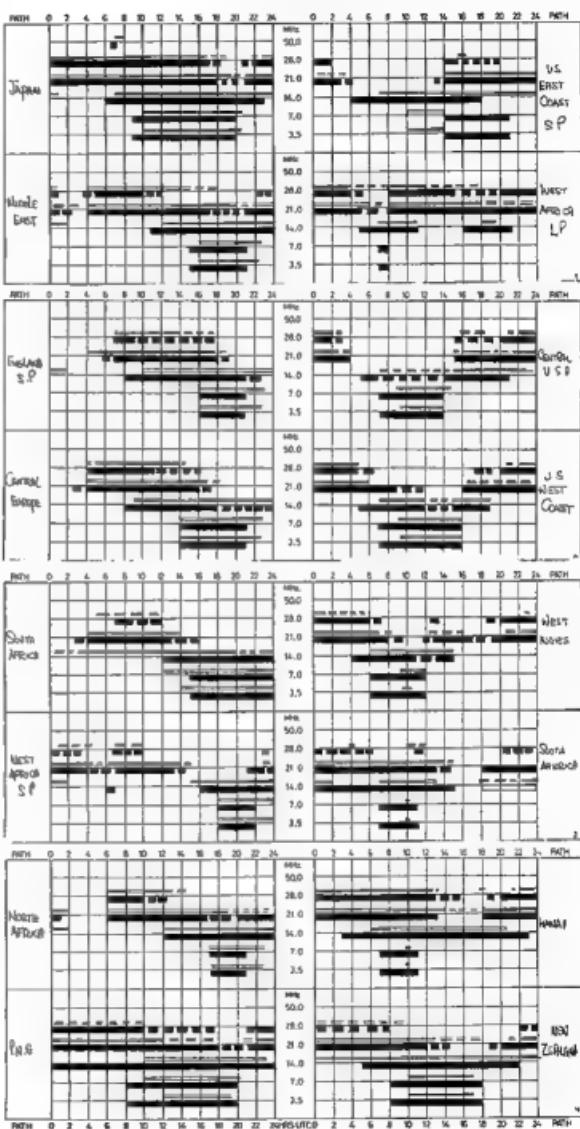
Q01, QH Malheen Is., Bv2, GL1, GM2 W Malaysia, GM6/3MB E Malaysia, GV1, GV4

*All calls operated from Commonwealth controlled areas of the Antarctic (VK0, VP8, ZL5 etc) count as one call area.

Results of the 1979 Contest in which 41 VKs submitted logs appeared in December 1979 Amateur Radio.

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC

**LEGEND**

- FROM WESTERN AUSTRALIA
- FROM EASTERN AUSTRALIA

- BETTER THAN 50% OF THE MONTH BUT NOT EVERYDAY
- LESS THAN 50% OF THE MONTH

PREDICTIONS COURTESY UPS SYDNEY

AUSTRALIA UNIVERSAL JRC (GANT)

**IF
YOU'RE
NOT
BUYING
AMATEUR
RADIO
ACTION**



(IT'S AUSTRALIA'S BEST
SELLING AMATEUR MAGAZINE)

**THEN
YOU'RE NOT
KEEPING UP WITH
THE LATEST
NEWS, VIEWS
AND REVIEWS**

Please put me down for 12 editions of Amateur Radio Action starting NOW!

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Post to: Amateur Radio Action Subscriptions, Box 628E, Melbourne 3000.

WICEN

Ron Henderson VK1RH
Federal WICEN Co-ordinator,
53 Hennaford St., Page ACT 2614
Ph (062) 54 2050, A.M.

EMERGENCY SERVICES COMMUNICATIONS

PROCEDURE

This issue we continue with the third part of the Emergency Services Communications Procedure Paper

20. SIGNAL STRENGTH AND READABILITY

A station that wishes to inform another of its signal strength and readability will do so by means of a short and concise report of actual reception such as "Weak, but readable", "Strong, but distorted", "Loud and clear", etc. A station desiring to know how its transmission is being received will transmit "How do you hear me?"

21. SYNCHRONISING TIME

- (a) When a net has been established, Control should announce the time so all operators can synchronise their watches. To do this Control will say, for example "All stations THIS IS (Call Sign). When I say time it will be exactly 1500 hours. 15 seconds — 10 seconds — 5-4-3-2-1 — Time 1500. OVER".
- (b) Control will use the same procedure if a request for the time is received from a substation.

22. OFFERING MESSAGES

(a) An offer is a short announcement made to warn the receiving station concerned that a message follows. All messages will be offered. The pwordos used in the exchange of calls in the offer of a message are "MESSAGE" or "LONG MESSAGE" or "UR MESSAGE". "SEND".

(b) When the sending operator has a long message he warns the receiving operator by offering the message as a "LONG MESSAGE".

23. RECEIPTS

The transmission of a message is not completed until the receiving station gives a receipt for it. This is done simply by using the pwordo "ROGER".

Example
"VK1BAA THIS IS VK1BAC send vehicle for mail — OVER".

"VK1BAA — ROGER — OUT"

24. TYPES OF CALL

There are three types of call which can be used on a net. They are "Single, Multiple and All Stations".

(a) Single Call Used by Control to substation, substation to control or substation to substation.

Example: Control to substation (or substation to control, VK1WI is control). Control "VK1BFA THIS IS VK1WI UR MESSAGE — OVER".

VK1BFA: "THIS IS VK1BFA — SEND — OVER".
Control: "THIS IS VK1WI — fresh batteries have arrived — OVER".

VK1BFA: "VK1BFA — THIS IS VK1BFA — UR MESSAGE FOR VK1BFC — OVER".

Control: "THIS IS VK1WI — SEND — OUT".
VK1BFC: "VK1BFA THIS IS VK1BFC — SEND — OVER".

VK1BFA: "VK1BFA — request loan of a new battery — OVER".

VK1BFC: "VK1BIC — ROGER — OUT".

(b) Multiple calls. Used by Control to two or more substations but not used when calling all substations.

EXAMPLE
Control "VK1BFA, VK1BFB THIS IS VK1WI — UR MESSAGE — OVER".

VK1BFA: "VK1BFA — SEND — OVER".
VK1BFB: "VK1BFB — SEND — OVER".

Control "VK1WI — Collect fresh batteries from me — OVER".

VK1BFA: "VK1BFA — ROGER — OUT".

VK1BFB: "VK1BFB — ROGER — OUT".

(c) All Stations Call Used by Control to all substations on the net. (All Stations on the Net reply in alphabetical order).

EXAMPLE

Control "ALL STATIONS — THIS IS VK1WI — UR MESSAGE — OVER".

VK1BFA: "VK1BFA — SEND — OVER".

VK1BFB: "VK1BFB — SEND — OVER".

Control ALL STATIONS — THIS IS VK1WI — Have you received fresh batteries — OVER".

VK1BFA: "VK1BFA — YES — OUT".

VK1BFB: "VK1BFB — NO — OUT".

VK1BFC: "VK1BFC — YES — OUT".

25. SENDING A LONG MESSAGE

A long message is one of more than 30 words or text. The following procedure is then adopted.

(a) The message will be offered using the pwordo LONG MESSAGE.

(b) It will be sent in sectors.

(c) After about 15 groups, the sender confirms progress by saying "ROGER SO FAR — OVER".

(d) Receiving stations answer "ROGER" in turn or, if necessary ask for repetitions.

(e) After obtaining acknowledgements from all receiving stations the sender pauses for five seconds. This is to allow any other station to transmit an urgent message.

(f) If there is no interruption the next sector of the message is transmitted.

This procedure is continued until the message is cleared.

EXAMPLE

VK1BFC is sending a LONG MESSAGE to VK1BFX. He sends it in two sections.

VK1BFC: "VK1BFX — THIS IS VK1BFC — LONG MESSAGE — OVER".

VK1BFX: "THIS IS VK1BFX — SEND — OVER".
VK1BFC: After sending the heading of the message says

"BREAK — following accommodation stores required — by one six hundred hours today — stop — blankets figures five hundred — stretchers figures two five zero — ROGER SO FAR OVER".

VK1BFX: "VK1BFX — SAY AGAIN WORD AFTER Accommodation — OVER".

VK1BFC: "VK1BFX — I SAY AGAIN WORD AFTER Accommodation stores — I SPELL — 8 zeros Tango Oscar Romeo Echo Sierra — stores — OVER".

VK1BFX: "VK1BFX — ROGER — OVER".

VK1BFX pauses for 5 seconds to allow any station with urgent traffic to call in.

VK1BFX goes on sending the rest of the message.

"VK1BFX — THIS IS VK1BFC — pillows figures two five zero — cutters sets figures two five zero — cooking sets type Delta figures two — MESSAGE ENDS — OVER".

VK1BFX: "VK1BFX — ROGER — OUT".

26. WORDS TWICE PROCEDURE

When communication is difficult, call signs, phrases, words, or groups are transmitted twice and indicated by use of the pwordo WORDS TWICE. Receipt may be verified by use of the pwordo "READ BACK".

EXAMPLE A

VK1BFX: "VK1BFC — VK1BFC THIS IS VK1BFX — VK1BFX — UR MESSAGE — UR MESSAGE OVER".

VK1BFC: "VK1BFX — VK1BFX — THIS IS VK1BFX — VK1BFX — WORDS TWICE WORDS TWICE — PRORITY PRIORITY — TIME ONE TWO TWO ONE SIX THREE ZERO TIME ONE TWO ONE SIX THREE ZERO — BREAK BREAK — CONVOY has arrived Convoy has arrived over — over".

VK1BFX: "VK1BFX — VK1BFX — THIS IS VK1BFX — VK1BFX — WORDS TWICE WORDS TWICE — PRORITY PRIORITY — TIME ONE TWO TWO ONE SIX THREE ZERO TIME ONE TWO ONE SIX THREE ZERO — BREAK BREAK — CONVOY has arrived Convoy has arrived over — over".

SIDEBOARD ELECTRONICS ENGINEERING

P.O. BOX 23, SPRINGWOOD, N.S.W. 2777
WAREHOUSE 213 HAWKESBURY RD, SPRINGWOOD
TELEPHONE (047) 54 1392

Overseas prices again show an upward trend. If you are in need of new equipment it makes sense to purchase now. Prices must increase once current stocks are sold. How about KENWOOD transceivers at the right price, or a YAESU FT-1011Z fitted with fan at \$850-, HENRY linears \$850 - and \$1050-, TM6-DXX \$300-, 18-AVT/WB \$110-, Rotators, cables and Co-ax connectors all at the right price. Check and compare our prices with others before you buy!

HENRY RADIO — A Famous Brand —

NEW LINEAR AMPLIFIERS —

2KD-5 — 2KW PEP, 80 - 10m SSB/CW/RTTY/AM	\$1050
1KD-5 — 1200W PEP, 80 - 10m SSB/CW/RTTY/AM	\$850

BAIN ANTENNAS

TH6-DXX 10-15-20M, 6-el. yagi.....	\$300
18-AVT/WB 10-80M vertical	\$110
204-8A 20M, 4-el. Tiger array.....	\$220
BN-88 balun for beam buyers.....	\$20
HY-Q (USA) 60-ohm 1KW balun.....	\$15

ROTATORS & CABLES

All rotators now come with bottom brackets and control-indicator boxes wired	
KEN KR-400 medium duty.....	\$120
KEN KR-500 vertical rotator	\$140
KEN KS-085 stay/thrust bearing.....	\$25
CDR BT-1A light duty 4 position push button programmable. Plus normal operation 120V AC.....	\$85
CDR am III heavy duty 120V or 28V AC.....	\$175
CDR tall-twister extra H/D120V or 28V AC	\$225
RG-8U foam coax cable, per metre.....	\$1.00
8-cond. rotator cable, per metre.....	.75c

ACCESSORIES

Voltage regulator 18V AC Input, 12V DC 3A output	\$18
240/18V AC transformer	\$10
Mobile bumper mounts 3/8" 24 thread	\$2

KYOKUTO FM-2016A

800 channel, 2 meter FM transceiver with 4-channel memory and scanner 15W.....	\$355
--------------------------------------------------------------------------------	-------

TRIO-KENWOOD PRODUCTS

VFO 520 for TS 520S	\$130
LF 30A low-pass filter.....	\$30
SP-120 (TS-120 series) SP-100)	each \$32
DK 520 adaptor TS 520 to DG 5.....	\$10

All further Trio-Kenwood accessories and transceivers at competitive prices.

YAESU MUSEN PRODUCTS

FT-1012D 10-16M digital transceiver w/cooling fan fitted.....	\$850
SIDEBOARD brand microphone to suit.....	\$10

CO-AX CONNECTORS

PL-259, SO-239, cable joiners, each.....	60c
Right angle and T-connectors, each.....	\$1.00
GLP right angles RG-58U to SO-239, w/lock nut and cap, each.....	\$1.50
Double female connectors, each.....	60c
MLS right angles RG-58U to PL-259, each.....	75c
In-line mike sockets 3 & 4 pin, each.....	60c
Mike sockets 3 & 4 pin, each	60c
M-ring body mount w/lock-nut.....	\$1.50

NOVICE SPECIALS-TRANSCEIVERS

10M sideband SE-502 USB/AM 15W PEP-240V AC, 12V DC, inbuilt SWR/RF meter, 28.3-28.6 MHz clarifier tuning transmit and receive	\$80
10M Universe 224-M, USB/AM, 15W PEP 12V DC, 24-ch. 28.480 to 28.595 MHz, 5-Khz steps-clarifier tuning transmit and receive.....	\$85
CONVERSION CRYSTALS for amateur licence holders - set of 8 crystals to convert 23-ch. 27-MHz CB units to 28 MHz. Suitable for Kraco, Sideband, Universe, Hy-range V etc., converts as per Universe 10M above - CRYSTALS & INSTRUCTIONS	\$32
Set of 4 crystals converts to 28.3-28.6 MHz	\$15

All prices are NET, ex Springwood NSW, on pre-payment with order basis. All risk Insurance is free of charge, allow for freight charges by air, road, rail or postal, excess will be refunded. Prices are subject to change without prior notice. All orders cleared on a 24-hour basis after receipt of order with payment.

ROY LOPEZ (VK2-BRL) Manager

AWARDS

COLUMN

Bill Verrall VK5WV

7 Lac Ave., Flinders Park, S.A. 5025

WORKED GERMAN LARGE CITIES AWARD

This award is available for working stations in West Germany. It is available in three (3) classes and there is no restriction on the mode used. No band endorsements are made as more than one band may be used in qualifying for the award. Each city may be listed once only in the claim. The three classes are —

Class	DX Stations
3	10 Cities
2	20 Cities
1	30 Cities

QSLs are not required for this award, but is list certified by two other radio amateurs or an officer of a National Radio Society should be submitted together with 10 IRCCs. The Award is also available to SWLs on a "Head" basis.

Cards should be sent to: Karl-Heinz Kurzweile, DL2.B, 694 Weilheim Postfach 23, Germany

German Large Cities are: Aachen, Augsburg, Berlin, Bielefeld, Bochum, Bonn, Bottrop, Braunschweig, Bremerhaven, Darmstadt, Dortmund, Duiseldorf, Duesseldorf, Essen, Frankfurt/Main, Freiburg, Gelsenkirchen, Goettingen, Hagen, Hamburg, Hanover, Heidelberg, Hellbronn, Herne, Karlsruhe, Kassel, Kiel, Koblenz, Köln, Kraichtal, Leverkusen,

Ludwigshafen, Luebeck, Mainz, Mannheim, Monchengladbach, Mülheim/Ruhr, Muschen, Münster/Westf., Neuss, Neumarkt, Oberhausen, Offenbach/Main, Oldenburg, Osnabrück, Recklinghausen, Regensburg, Rhinefall, Saarbrücken, Saarlippe, Solingen, Stuttgart, Trier, Ulm, Wanne-Eickel, Wiesbaden, Wilhelmshaven, Witten, Würzburg and Wuppertal.

"100 X" AWARD

This award is issued by the Mexico DX Club to licensed radio amateurs and SWLs for confirmation of QSOs with stations that have in their call sign one or more "X" letters (XE1OW, W4LXX, EA3AK, IZ2XYZ, etc.).

To apply for this award you must have at least 100 points.

Each letter X of stations of any country outside Mexico counts 1 point.

Each letter X of Mexican stations count 2 points.

Each letter X of Mexico DX Club members counts 3 points.

QSO with the club station of the Mexico DX Club "XE1MDX" counts 10 points.

Only contacts after January 1st of 1973 are valid.

Application and QSL cards must be sent to P.O. Box 2157 in Mexico City 21.

For safe return of the QSL cards and award, please include 15 IRCCs (or 3 dollars U.S.A.)

CENTRAL COAST AWARD (VK2)

The Central Coast Amateur Radio Club issues an award to stations who meet the following requirements —

1 Overseas Stations:

Overseas stations must work Two (2) stations

resident on the Central Coast of NSW or one of the Club stations VK2EH or VK2AFY

2. VK Stations:

VK stations must work Four (4) stations resident on the Central Coast of NSW plus either of the Club stations VK2EH or VK2AFY

3. Central Coast of N.S.W. Stations:

Central Coast stations must work Ten (10) stations resident on the Central Coast of NSW plus either of the Club stations VK2EH or VK2AFY

4. The Central Coast of New South Wales is defined as that area within the Shires of Gosford and Wyong

5. After the necessary number of stations have been worked send a copy of the log extracts to

The Awards Manager, P.O. Box 238, Gosford N.S.W. 2250, Australia.

After verification of the QSOs the Award will be issued

Good Hunting.

UPDATED ENDEAVOUR AWARD RULES

(See also AIR, February 1979 and July 1978)

Rules

1. The name of the award shall be the "ENDEAVOUR AWARD" and shall be open to all radio amateurs and short wave listeners.

2. Applicants must establish two way amateur communications with RNARS Members residing in Australia. SWLs must monitor Australian RNARS Members.

3. Points will be awarded on the basis of one point per VK RNARS Member worked/heard per band, regardless of mode. Only contacts after January 1st 1978 will count towards the award. Contacts on the VHF bands will count double points. All contacts with HMAS NIRIMBA club station, VK2BNR, count double. To qualify the following is required —

For amateurs/SWLs residing inside Australia — 15 points.

For amateurs/SWLs residing outside Oceania — 10 points.

For amateurs/SWLs residing outside Oceania — 5 points.

In addition, for amateurs residing outside Oceania, contacts with VK RNARS Members on the 3.5 MHz band will count double points. For the purposes of this award, any RNARS Maritime Mobile Member when located inside Australian waters may be counted as a VK Member.

4. The Award will be endorsed ONLY at the request of the applicant and the following endorsements are available

ALL CW — ALL SSB — ALL NOVICE — ALL 3.5 MHz — ALL 28 MHz — ALL VHF — FIVE-BY-FIVE. The last endorsement being for gaining at least five points on each of the five high frequency bands.

5. A special sticker is available to add to existing certificates for gaining 100 POINTS. However, any previous MODE endorsements on the original must hold true for all 100 points, or a second award claim for mixed mode must be made. The sticker is issued free of charge to existing award holders. A SASE or 2 IRCCs would be appreciated to cover return postage.

6. To claim the Award, no QSLs are required. Full log details showing the VK member for (MM-OTH) claimed, their RNARS number date, time, frequency, mode, plus an application fee of \$1.50 Australian or 7 IRCCs are to be sent to the Endeavour Award Custodian —

Mr. R. Bay, #3 HMAS Australia Road Henley Beach South, SA 5022, Australia. Please ensure all monies are in Australian currency and made payable to "R. Bay". Clearly state what endorsements are claimed. Certificates to successful applicants will be forwarded by air-mail.



THE CENTRAL COAST AWARD

Presented by

Central Coast Radio Club

To

FAB. LS ONLY

WHO HAS MADE RADIO CONTACT WITH THE REQUIRED NUMBER OF AMATEUR RADIO OPERATORS WHO ARE MEMBERS OF THE CENTRAL COAST RADIO CLUB

Award No.

Stations Contacted

President

CENTRAL COAST - THE HOLIDAY COAST

The Central Coast which has been called the Holiday Playground of two cities, contains more than 120 square miles of the finest and most varied scenery. The area has a great diversity of interests including 30 of the most beautiful beaches in the State, more than 100 square miles of shark-free acres, mountain lookouts and scenery, highly timbered forests and more than 200,000 acres of wonderful national parks and reserves. The Central Coast is a water underlined coastline, the third longest coastline in the world. It is a place of great beauty, the climate is mild and the roads fast and modern electric train service from Sydney. Situated midway between Sydney and Newcastle 50 miles from each, with excellent shopping facilities and a population of 78,000 it is a wonderful area in which to live or spend a pleasant holiday.

The Central Coast Radio Club, operating station VK2AFY, is a branch of the Wireless Institute of Australia which is the oldest amateur radio organisation in the world.

This Award has been sponsored by The Central Coast Tourist Authority

The Central Coast (VK2) Award

Join the IW net at 2300Z on Thursdays on 14165 kHz when you have intruder information.

ALARA

AUSTRALIAN LADIES AMATEUR RADIO
ASSOCIATION

Results of the elections which were held at the Annual General Meeting of ALARA. President — Heather Mitchell VK3JAU, Vice President — Randi Fowler Secretary — Laurel Coddige VK3ANL, and Treasurer — Mavis Russell VK3GBR. Last year's officers were given thanks for the work they did and the time they contributed. The group gave special thanks to Mavis VK3JAU R for all the contributions in time and energy she has made this past year to amateur radio and ALARA.

The next meeting of ALARA will be held at the home of Mavis Stamford VK3KJS, 16 Byron Street, Bon Hill, on 9 February, 1980. There is no meeting in January.

YL ACTIVITY DAY

Arrm: For YLs to meet and get to know other YLs without contest pressure, to have more personal QSOs than occur in a YL net, and to help OMs who may need a quick contact for a YL award.

Date: the 5th day (GMT) of every month.

Frequencies 3.688, 7.088, 14.288, 21.188, 21.388, 28.588 MHz ± QRM.

Times or the hour, every hour if you don't hear any YLs, please call CQ YL.

(Thanks to Diane G4EZI for the information.) ■

CAMEO OF MAVIS RUSSELL VK3GBR, PRESIDENT OF ALARA, 1979

Mavis has had her 4W call for 2½ years now. She became interested in amateur radio when her husband, Eric VK3ERB, received his ticket. She took a correspondence course, but her interest waned. Mavis had heard about the formation of ALARA on the WIA broadcast, but it was the ALARA sked on 80m that really piqued her curiosity. So, in July 1975, she took classes at the Eastern and Mountain District Radio Club. In 1977, she received the news that she had passed the full call exam. Mavis remembers that it was a "frenziedly exciting moment", and it was followed by much celebrating.

Since then, Mavis has been active in many aspects of amateur radio. She has participated in WCEM activities in particular the caravane race on the Murray. She was on the steering committee of the Frankston and Mornington Peninsula Amateur Radio Club and has been on various committees since its inception four years ago. Presently she is the QSL manager for the club.

Her involvement with ALARA began with the skeds and the monthly meetings in 1975. In 1979 she served as President. Her efforts have brought forth the ALARA Award, newly printed but not yet publicised and an expanded membership base. She wants to have more YLs involved in the sked (Monday 1030 QST 3.58 MHz ± QRM). With the help of State Colonels she has been experimenting with moving it into the novice section in the hopes of fuller participation.

Mavis enjoys working QX and has worked the 100 countries needed for the DXCC but has yet to apply. Her goals for the coming year are to improve her CW end and to get involved with satellite operation in fact the whole family is interested in satellites. Mavis says that one of her sons, aged 18, will be sitting for its novice exam in February. That may result in competition for the use of the rig, with three amateurs in the household.

Mavis is quite active on SSB, especially on 20m and 2m. Early in the morning before work, she can be heard on 10m, sometimes chatting with Eric YJ8MEM. It was her on air friendship with Eric that helped Mavis travel to Port Vila and operate there with YU8 call last October. Her special QSL cards have been printed and are being posted.

The Victorian Division held a pre-Christmas picnic in Woodend at the home of Janet VK3BTU. Among those attending were Norma VK3AHL and Frank VK3AKG, who were married only a week previously. Congratulations and best wishes to the

both of you! Norma was the foundation president of ALARA in 1975.

YRLR. ALARA's sister organisation in the US, celebrated its 40th birthday A YL Anniversary Contest was held and a few YK YLs participated. No news yet about the results.

YL Activity Day is the 5th of every month. Look for YLs on the hour, every hour, at the following frequencies. 3.688, 7.088, 14.288, 21.188, 21.388, 28.588 ± QRM. Geraldine VK2HDI and Helene VK2BD did call "CQ YL" last month but they were unsuccessful in making contacts. Mavis VK3GBR hopes to give it a try next month when repairs to her antenna should be completed.

If you are a YL and would like to join ALARA, the only requirement is an interest in amateur radio. For more information, please contact the Secretary, Box 110, Blackburn, Victoria, 3130

Maggie VK3APR. ■

INTRUDER WATCH

All Chandler, VK3LC

FEDERAL INTRUDER WATCH CO-ORDINATOR REPLACEMENT

As denoted in November AR I have relinquished the position of Federal IW Co-ordinator, and have been fortunate in finding a replacement.

Graham VK3NKH is your new Co-ordinator as from January 1980, and it is very fitting that a Novice should take over the co-ordination.

With the conclusion of WARC 79 there is a completely new era commencing for Australian Radio as a whole, and for Australian Amateurs too. With the above in mind, I am of the opinion that the IW should be handled by new and enthusiastic members, and Novices fall into that category. The old-timers have done a very good job in the past and it is up to the newcomers to do likewise in the future. The future destiny of Amateur Radio is in their capable hands.

Co-ordinators as at the time of writing are —

VKNBDR R. Chorley, 42 Gouger Street, Torrens 2607

VK7AFG Les Weldon, 11 Raymond Avenue, Northmead 2152.

VK3 —

VK4NMJ Gordon Loveday, "Artemore", Rybervale 4702.

VK5LG Leith Cotton, 84 Werona Avenue, Parkholme 5043.

VK8VQ Dave Couch, 9 The Grove, Wembley 6014.

VK7NJC Jeff Corridell, 323 Lenah Valley Road, Lenah Valley 7008.

VK8HA Henry Andersson, PO Box 1418, Darwin 5794.

Federal, VK3NKH Graeme Fuller, PO Box 156, Healesville 3777.

All Chandler VK3LC,
IARU Region 3 IW Co-ordinator.

INTERNATIONAL NEWS

H44

A note has been received about the formation of a new society in the Solomon Islands — SIRS, the S. Island Radio Society. The inaugural general meeting was held on 10th October 1979, and a call sign H44SI has been obtained. The President is H44DX and Dr. G. W. Hughes is the Secretary. The address is P.O. Box 418, Honiara, Solomon Islands which also serves as their Inward QSL bureau address.

RECIPROCAL LICENSING

Details were published in AR, Jan. 1978, p.25. ■

MAGAZINE INDEX

Roy Hartcote VK3AOH

From this issue onwards it is proposed to make some alterations to the Magazine Index Department of AR. The title of an article can often be misleading and it is disappointing if one goes to a lot of trouble to hunt up a magazine and then finds that the article has — for instance — no constructional information. Therefore it is proposed in future to add a key letter to the various titles listed, G for general, C for constructional, P for practical where there are no actual construction details, T for theoretical and N for anything of particular interest to the Novice. Any comments from readers as to whether they find the new format helpful would be greatly appreciated.

73 MAGAZINE August 1979

Converter for 2 GHz TV Channels (P), History of Ham Radio (G), The Potted J Weatherproofed Antenna (P)

September 1979

History of Ham Radio (G); Remote Control for the IC223 (P)

RADIO COMMUNICATION June 1979

Improving the FT-101 (G).

August 1979

CMOS Keyer with Memory (C)

CQ August 1979

The People's Temple Net (G); Foreign Morse Codes (G, N)

October 1979

DX World Records (G); Crystal-transistor Tester (G, N)

HAM RADIO July 1979

UHF Local Oscillator Chain (C); 40 Metre Beverage Antennas (C); Test Equipment Mainframe (C)

August 1979

12V 10A Power Supply (C), Ground Systems (G)

QST June 1979

AR in Tonga (S), 5/8 2 Metre Antenna (C)

September 1979

Printed Line Techniques for VHF IC, G; onshore-Ducting (G), Mono-Loope Delta Antenna (C).

These are a few highlights. More next time. ■

QSP

CB AGAIN

According to reports in CQ for October 1979 Japan has recently approved a CB service which will operate in a band consisting of 110 channels. Channel 1 is identical to that in the USA CB service, with the highest channels extending to just under the 10 metre amateur band. ■

USA REPEATERS

How many amateur repeaters are there in the USA? AR Repeater Directory lists 4872 in 1979, which excludes some private and closed repeaters mainly in the 70 cm band. There were 3433 on 2 metres, and 728 on 70 cm, with others on 10 (36) and 6 (193) metres, 220 MHz (446) and 1215 MHz band (7) and 24 ATV repeaters. If the growth rate continues there would be over 10 000 in 1982.—OST Jay 1979. ■

VALVE (TUBE) PROBLEMS

Writing in Technical Topics in November 1979 Radio Communication calls Pat Hawker quotes the growing scarcity (and consequent rising cost) of many once-familiar valve types now that new TV receivers (the last mass market for valves) are virtually entirely solid-state. Some valves for TV sets, not being designed for RF applications, may or may not neutralise satisfactorily depending on the make. Inter-electrode capacitances seem to vary widely between different brands of the same valve type, e.g. 12BY7Y. ■

AROUND THE TRADE

ICOM RELEASES MICROPROCESSOR 2m RIG

Following the tradition of the earlier IC211 2 metre multi-mode transceiver the IC251A has improved performance and facilities, apart from introducing new power supply technology. In common with the 6m version, a pulse type (50 kHz) power supply is used on AC allowing a reduction in weight and heat.

Using micro computer control, a multi-purpose scanning facility allows monitoring of three different memory channels, a program scan giving scanning between two programmed frequencies, and an adjustable scanning speed that stops scanning when a signal is received — on all modes!

Continuous coverage over the complete 2m band is provided with either 1 kHz steps on FM or 100 kHz steps on SSB, with a fast tuning facility as per provided.

Further details and prices are available from Icom at their Melbourne and Sydney addresses or their interstate representatives.

For further information contact CW Electronics, Cnr Marshall Road and Chamberlain Street, Tantramarind, Brisbane, Qld 4109. Tel (07) 48 6601 ■



Nigel Sheppard (l) and Brian Beamish (r) discuss the Commodore PET.

NEW COMMUNICATIONS MONITORS

Instrument Flight Research (IFR Inc.) have released, through their newly appointed agents, Vicom International Pty. Limited, Professional Products Division, their communications monitor FM-AM 1000A and FM-AM 1000S. The instrument covers 100 Hz-999.9999 MHz as a generator and as a receiver 300 Hz-999.9999 MHz with accuracy quoted as 1×10^{-4} ppm. The instrument covers all functions as standard, and this includes spectrum analysis (S Model), audio synthesis, two tone generation, GPO for single sideband measurement, power measuring to 100 watts and field strength measurements as well. Indeed, all modes of measurement are available at the flick of a switch.

The instrument is powered by mains voltage (either 240V AC or 110V AC) or by its own built-in Nicad battery pack. Because the instrument is small and light it is well suited to field operation.

Further information and specifications may be obtained from the authorized Australian agents, Vicom International at 68 Eastern Road, St Kilda, Melbourne. Phone (03) 699 6700 or 339 Pacific Highway, Crows Nest, Phone (02) 438 2766. ■



IC225 MAKES 2k

Over 2000 units of the current Icom Model IC225 2m FM transceiver have been sold in Australia, according to the distributors, Vicom International Pty. Limited. This is in addition to the popular IC22A and IC22 series. ■

LEADER LDM170

As part of the vast range of Leader test equipment, Vicom International are pleased to announce the release of their noise and distortion meter (model LDM170).

The instrument is available from Vicom International Pty. Ltd and distributors ■



DAIWA RELEASE NEW SPEECH PROCESSOR

Daiwa Corporation have released the new model RF660 RF Speech Processor designed for amateur radio transceivers.

The retail price is \$108 and it is available from the Australian distributors, Vicom International Pty. Ltd, 68 Eastern Road, South Melbourne.

The RF660 is shown below with the popular Kenwood TS120V



DIVISIONAL NOTES

VK2

34th URUNGA CONVENTION AND FIELD DAY, EASTER 1980

April 4th, 5th and 6th

Friday 4th 2000 hrs Ocean View Hotel, Urunga. Ragewash and Registration, OM \$7, XY \$5, Family \$15. Includes maps and tourist information, s.a.l events, morning and afternoon tea, Saturday and Sunday, supper Saturday and Sunday.

Saturday Urunga opposite Ocean View Hotel.

Sunday Bellinger Show Ground. Coming from Highway turn right at Bellinger Post Office — follow signs.

Car trips have been arranged to local cottage industries for those who are interested. Details will be available at the Registration table.

Trade sales, displays — bring and sell — lucky registration amateur's displays, cottage industry displays. Quizzes.

7100 MHz-28.5 MHz-145 MHz monitored for talk-in.

Further information can be obtained from the Colts Harbour Club Net each Monday at 2000 hrs Aest summer time on 3810 MHz or from Urunga Convention Secretary Max Francis, Dowle St, Bellinger 2454.

BUYING OR SELLING GEAR?

HAMADS

MAKE IT HAPPEN FAST

HELP WITH INTRUDER WATCHING

TRADE HAMADS

For a very long time commercial advertising has not been accepted in AR Hamads, but as the result of discussions at the 1978 Federal Convention a decision was made to open up a "Hamads-Trade" section. The rate will be \$10 for 4 lines plus \$2 per line (or part thereof), minimum charge \$10, payable. Copy is required by the first day of the month preceding publication. This will mean that in future ordinary Hamads submitted from members who are deemed to be in the general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.

HAMADS

- Eight lines free to all WIA members. \$8 per 3 con for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Reprints may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after 12th of the month cannot be processed.
- QTHR means address is correct as set out in the WIA 1978 Call Book.

FOR SALE

Kenwood T8120V HF Tvar, g.c. (working A1), with manual and orig. packing, 4 mtrs. old, little use, but slightly soiled on sides of cabinet, \$510. O.N.O. Ph. VK3NAY/ZAU. Ph. (03) 221 6581 A.H.

Teleplay Model 15 for RTTY, adjusted to 45.45 baud, good working order, \$50; transformer, 240/110V, for above, \$15. VK5NKP. Ph. (02) 281 2537.

SC-348 Rev B with P/S, spare valves and manual, \$50; Geloso G-209 Rx, needs repair, dial mechanism perfect, \$50; var variable capacitors, 40-300pf, 7 KV, brand new, \$20; 6 position rotary S/W, 13 KV, 20A, compact size, brand new, \$20. John VK2PI. Ph. (02) 922 4855.

Collins Comm. Rx 8144, with manual, full set of spare valves, \$300; Kenwood TR7400A, as new, 35W output, \$350; Ches Challenger 10, unwanted gift, \$200. VK5KAVP (with VC2KNNK). QTHR. Ph. (047) 241 4733.

IC5510 6m Tvar, 100W, IC211, 2m trcwr, 6m 5 s. yagi, \$200. 2m Icwr, 100W, mobile, Hustler vertical 4-BTV, 13.8V 12A, regulated DC, HD supply. Ph. (03) 242 1231. (03) 509 8537 A.H.

Ny-Gain 14 AWT Vert. Antenna, 10-40m, as new, complete with instruction sheet and carcase, \$50. VK2ATP. QTHR. Ph. (02) 88 7151.

Drahn Comm. Rev R44A, ham and ion SW 500 kHz bands, Drahn, N.R., four Drake filters installed, notch filter, exc. selectivity and sensitivity, 1 kHz frequency readout, matching Drahn MS-4 comm. speaker, manual, mint cond., \$225. James VK2ZIO, GPO Box 5075, Sydney 2001, NSW. Ph. (02) 36 7756.

Yessu FT7, little use, orig. carton, complete works like a charm, \$350. Drahn W-4 meter, 0-200W, a must for every shack, \$40. L. Wade VK2AQW. Tel (02) 358 3995 A.H.

FT2FB 2m Transceiver (rep. 2, 5 and 8 and simplex Ch. 40) and matching FP2 AC power supply, \$160. ONO. M. Ender VK3AVO, QTHR. Ph. (03) 544 4109.

TH349 Tribander, 6 mtrs. old, \$120; FT7 xcvr, \$400; FL110 Yessu linear, \$180; YQ301 Yessu minicomputer, \$120; IC202 2m SSB xcvr, \$100; Phillips RC/bridge GM414, \$25. VK3CCE, QTHR. Ph. (03) 509 1567 A.H.

icom IC211 all mode, 2m, Tvar, very little use, faultless, as new cond. and operation, \$670. VK3SB, QTHR. Ph. (03) 550 3821.

FTDX 400, just re-aligned, good cond., \$350. VK1IMP, QTHR.

Complete Station: Yessu FT101E, good cond., with manual and carton, \$600; Kenwood TH7600 2m trcwr., complete, \$350; RM76 microprocessor, c/w TR7600/7625 for keyboard entry of frequencies, scanning, six memories, etc., \$395; SX101 scanning rcvr., 2 mtrs. old, \$330. Richard Cowles. Ph. (02) 699 9403.

Yuden 2820, \$535; V5/R 80-10m trap vrt. ant., \$90; 4 el. 6m beam, \$40; CS201 coax switch, \$15; Hansen SWR bridge and FS motor, \$20. David VK3ZCR/NKG. Ph. (03) 460 5270 A.H. (03) 379 9468 Bus.

Trio CD-1300D Oscilloscope, \$190; Yessu FT7 Tx, \$395; Yaesu FRC7 with narrow filter and slow motion drive, \$260; 5 "bandit" quad hubs, never used, \$10 ea. Bruce VK5NBA, QTHR. Ph. (087) 647 7545.

Superior Icon 701, brand new, only removed from carton for checking, completely solid state, no tube (broad band design) final, from 160 to 10m, built in dual VFOs, \$1,000 without 240V power supply/adapter, or \$1,200, with I need the money. Len Shaw VK3JNL. Ph. (03) 60 0421, ext. 2066, Bus.

FUX 490, plus home brew linear, \$400 the lot. Ph. (058) 88 3263 evenings.

Trio JRS80U gen. cover. Rx, 0.35 to 30 MHz and 144 to 148 MHz, bandspread on amateur bands, Q multi, 100 kHz crystal calib. (needs xtal), recently re-aligned, \$125. VK3ZTA, QTHR. Ph. (03) 580 1157.

1984 Army Tvar A-816, good cond., incl. morse key, headrest, handset, four aerials, covers to fit webbing and also carrying case, best offer. Glenn VK4NUX, QTHR.

LAC 998 ATU, built-in SWR/power meter, 0.30-250W, manual, \$150. Heathkit antenna dummy load, 1 KW and oil cable. Will VK3BTQ. Ph. (03) 758 5701.

B47 6m FM Tunable Transceiver, ex army, \$25. ONO. VK3YSD. Ph. (03) 87 4105 Bus.

FT101B, work perfectly, AC, has faulty DC-DC inverter, causes low output transmission, from 17V, very good condition, original packing, \$500 NOHQ. TR200G, 2m FM portable, O/C, 40, 30, R42, R44, nittads, original packing, in new cond., \$190 ONO. VK4VKU. Ph. (07) 52 7230. Mon-Fri. after 5 p.m.

Vassu FT600B Tvar, Yessu FP301 power supply, Hoshka 10/15m VS22 Yagi, Emulator 103 LBX rotator and various other items in new cond., will have full coverage on 10 and 11m, complete station as above, \$1000. Genuine reason for selling. Kevin Cochs VK3NPQ, QTHR. Ph. (051) 52 4632 bus., (51) 57 1924 AH.

Heathkit 8101 Tvar, up-dated to SB102, CW Sill, 10 to 80m, like new; Heathkit 840 exc. VFO; Heathkit NP23A 240V power supply, solid state; Heathkit 12V DC power supply for mobile; connecting cables, manuals — \$350 the lot. VK2DA, QTHR. Ph. (02) 94 1029.

TM600X Ny-Gain Tri-Band Beam, completely refurbished, new boom section, new SS clamp, new trap covers, small elements, traps assembled, aliminozed, taped and sealed, tuned for 14,170 MHz, tested, beam to mast assembly etc., \$200. VK2DA, QTHR. Ph. (02) 94 1038.

Atlas 216X SSB Transceiver with Shure 404C mike, POA, icon IC25A VHF transceiver, POA, iash VK2AVV. (02) 653 2341 or (02) 406 5666 ext. 258 bus.

Yessu Guillermont HF Ant., base, 2m stub, 80m a/d 40m resonators, \$55. VK2DET, Corinal, N.S.W. Ph. (042) 643 3509.

Yessu 3910, 160-10m, 200W, PEP, all solid state, digital readout, exc. cond., \$300. Alex VK2HNG, QTHR. Ph. (02) 772 2645.

FT200 Yessu Tvar, with FP209 main power supply, as new, cooling fan, built-in audio filter for CW, instruction manual, ZL FT200 club workshop man., \$380. VK3ASW, QTHR. Ph. (03) 754 4194.

Meli Multi 18 Transistorized 2m FM Tvar, 25 ch. capability, ztals inc. rptrs. to 8, 40 and 50, complete w/ user extra, \$180. IGL 432 MHz strip-line transistor converter, 20 MHz IF with Hy-Q xtal, neatly boxed, \$20. VK4ZZI, QTHR. Ph. (07) 224 6875 bus.

Kenwood R-544D Comm. Rx, complete with all accessories, 4 select. filters, aux. bands, VHF converters, matching speaker, 240V AC and 12V DC, Kenwood DG-5 dig. display factory installed, can be used as local remote VFO for Kenwood 520 and 420 series, brand new in factory cartons, \$700 firm. Manfred Meyer, Box 120, Vaucluse, Ph. (02) 371 8854.

Hygain trapped vari. ant. for 10, 15 and 20m, \$50. VK2AKR, QTHR. Ph. (02) 441 1389 after 18.00.

Kyukotsu 2m Tvar, synthesised 800 channels, dig. readout, mic., handbook, no mods., exc. cond., \$260. M. Glover VK7MGO, Franklin St., Swansea 7275. Ph. (02) 57 8220.

Yessu FTDX 560 Transceiver, good condition, recent re-alignment, \$450. VK5BD, QTHR. Ph. (09) 294 1991.

FT101B AC-DC Tevr, 160-10m, 55B-CW-AM, mini cond., little used, complete, \$255. 14AVQ-WF 10m vert. ant, complete, good cond., \$45. VK5XY, QTHR. Ph. (08) 74 2350.

Shock Clearance. ICOM 21A/DV21, 2m FM synthesized, digital readout, full scanning and memory facilities plus several fixed channels, full metering, inbuilt AC P/S or 12V DC operation, all in new, \$350. Ken KF12A RF speech processor, \$100. DAIWA RF400 RF speech processor, \$90. Digital freq. counter to 250 MHz, \$100. 40m helical whip, \$10. 160m helical whip, \$15. Matching speaker for TSS20, \$25. Nicad charger for Ken KP202, new, \$12. VK3QNM, QTHR. Ph. (03) 860 2215.

Yessu FL-FRDX400, matching Tx and Rx, good condition, new final tubes, \$800 O.N.O. VK3ZNC, QTHR. Ph. (051) 47 2368.

Yessu FL-10 Linear Amplifier, brand new in carton with accessories, \$200 O.N.O. VK3ZNC, QTHR. Ph. (051) 47 2368.

Yessu FT-951 100W, power supply FP301, and ext. VFO FP301, complete with 10W link for Novice use, excellent cond. with cartons, \$1,100 firm. VK3NRI, QTHR. Ph. (051) 54 5056.

Riv 110 Equipment in working condition, Model 15 (new), Model 14 repairs and TDs, Model 15 (new) auto CR/LF and downshift on space, also Siemens Tape Teletype punches and readers. Belcome Satelite UHF Link and sunray dryer. Reasonable offers accepted. VK2ZN, QTHR. Ph. (02) 76 8547.

Ken KP230 handhold 2m FM Tvar, ch. 2, 4, 6, 8, simplex 40 and 80, exc. cond., v/cw, charger, nicals, helical and 1/4 wave whips plus PL259 adapter, all only \$175. Mark. Ph. (03) 528 6962 bus.

Yessu FT200/FP200 (black front panel), plastic cover still attached, good working order, some mods., handbook, \$380. VK2ABD, QTHR. Ph. (02) 451 1313.

2 sockets suit 4CX180 and 4CX280 Bars. \$3800, 2800 each. Comm. Rx Drake 8PRM (160-10m) and 30 MHz, N.I. fitted all 25ths v/g. good wks. order, set. state 12V DC plus 240V mains, \$450 O.N.O. VK3YND, QTHR.

TS820B with digital readout (heads small rear), mic., key (all in orig. cartons), \$650. Also IC228 2m FM Tvar, power supply, mounting bracket, whips, \$280. Setting for financial reasons. Simon VK2SJX, 322 The Boulevard, City Beach, WA 6015.

Radio Tower, triangular self-supporting 2 section, height 48 ft., 60 ft. with 2 inch tubing, base size 4 ft. triangle, top section (23 ft.) hinges over, maintenance platform at the top, completely rust proofed and galvanised, fitted with commercial heavy duty bearing thrust race, rotator and 140 ft. of rotor cable, dismantled and ready for transport, \$450. David Rosenfeld VK3ADM, QTHR. Ph. (03) 592 2188 after 5 p.m.

FT221, complete with YC221 digital freq. display, very good condition, \$700. VK2KI, QTHR. Ph. (02) 78 4237.

Yessu FTDX560, 160-10m, 55B, PEP, also spare set valves, \$450. Trio 2200 2m FM port. ch. 1-8, rptr., ch. 40, 50, 51 simplex, new nicals, \$210. Atlas 215 160-15m inc. mobile cradle, AC power, \$250. ZL osc. dig. readout, \$655. Video cassette recorder JVC VHS syst., 6 months old, \$950. Also \$300 worth cassettes for \$100. All prices O.N.O. will freight free. VK3BEJ, QTHR. Ph. (050) 245 614.

FRG-7 RX, switch SSB filter in addition to normal filter installed, \$250. DAIWA Model CL-86 antenna coupler/trapswitch type 500W PEP, \$75. Roy VK3XY, QTHR. Ph. (03) 557 1265.

Amateur Radio February 1980 Page 41

WANTED

Urgently, Model 15 Teletypewriter, am willing to pay up to about \$50 for machine in fairly good cond., set to speed 45.45 bauds, teletypewriter transformer also needed. T. Robinson L31105, QTMR.

Morse Keyboard, Aercom or similar, with memory. VK3EAC, QTMR. Ph. (03) 211 7965 A.H.

Mod Demod Unit and power supply for model 15 teletype. VK888, QTMR. Ph. (068) 45 4664.

Two 5B6Q Valves and two 5Z4s. Price, etc., to VK4NUY, 14 Cooradilla Street, Jindalee 4074.

Help! Urgently need circuit for PSU/batt. charger type PP5245 (032V, 0-60A, General Dynamics). Also, amplifier type 1925/1926 for Syntron-Donner counter type 1034 ("Delaisi") valve or translator Rx built, broken or in bits (will consider other 1-30 MHz Rx). Please write VK3ANC, QTMR, will delay all costs.

Radio and Hobnails, May 1939 (Vol. 1, No. 2), August 1940 (Vol. 2, No. 3), November 1940 (Vol. 2, No. 6). Jim Gordon, 6 Greenacres Ave., Ringwood, Vic. 3134. Ph. (03) 870 1745.

Yassef FT2110 2m all mode tcvr, good condition, also IC22A, TR7100 or FT 2m mobile, will pay current market price. Details for 2m conversion of Cybernet CR 100. Jeff VK8GF, QTMR. Ph. (099) 52 2967.

Service Manual for R5233 Rx, made by TICA for Australian Army. Lionel L. Sharp VK4NS, QTMR. Ph. (07) 59 1945.

Icom IC3P8 Power Supply to suit Icom 202E and linear, will exchange brand new IC3P8 supply which matches IC22S. Bill Jamieson VK3ZXX, QTMR. Ph. (03) 277 8172.

Home for Memorabilia Mem free to collector — Kingsley radio Type K/S signal booster with 14 and 28 MHz coils, and K/P/C tunerable 50 to 54 MHz converter, both as advertised AR 1947/48. Roy VK3XY, QTMR. Ph. (03) 557 1265.

Headphones, early Brown's type, adjustable diaphragms. Details to VK2KI, QTMR. Ph. (02) 75 4237.

Yassef FT201 Xcvr (not FT200), top price paid, or exchange FT101. Details to VK3OM, QTMR. Ph. (03) 555 0215.

Solid State High-Band Commercial Transceivers, suit conversion to 2m repeater. Two solid state UHF transceivers, suit conversion to 430 MHz for repeater control, good money for good gear. VK2ADZ, QTMR. Ph. (068) 82 3715.

Automatic Keyer. Send details and price to VK2AYR, QTMR. Ph. (02) 44 1389 after 18.00h.

WANTED KNOWN

DSI Superboard 2 or CIF units interested in swapping programs and/or information contact Fink VK4AVE on 21.175 at 2330 GMT (Sunday a.m. local time after the VK4 WIA news), or on 14.133 MHz at 0030 GMT.

TRADE NAMADE

High Gain Beams for 40, 20, 15, 10, 6, 2 and 70 cm, also UHF CB and ATU repeaters, DSI frequency counters and kits, Mirage PWR/SWR meters, also 2m amps with preamp. Write ATN Antennas, Box 80, Birchip 3483, for catalogue.

EFO ALPHA high power 1-30 MHz linear power amplifiers in stock now, model 76PAE with 3 Eimac 8874 tubes, manual tuning, heavy duty power supply, \$2,165; model 374AE, 2 Eimac 8874 tubes, no tune up, and manual tune if required, \$2,395; export versions all feature 10 meters factory installed; EFO Alpha appointed sole Australasian importer and distributor; after sales service. James Goodger VK2JJO, Australian Sound and Signal Research, GPO Box 5076, Sydney 2001, NSW. Ph. (02) 388 0428, 388 7786; A.H. (02) 36 7756.

A REMINDER

A WIA MEMBERSHIP CERTIFICATE IS OBTAINABLE ONLY FROM YOUR DIVISION.

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. A. C. LORD	VK3BRE
Mr. R. G. J. HORNE	VK3BLH
Mr. A. J. WARD	VK3IVH
Mr. W. S. LANE	VK3LY
Mr. K. J. COLLINS	VK3AMY
Mr. K. W. HELEY	VK3ZKW
Mr. T. WOODFORTH	L96488
Mr. BEN WALLICH	ex GB8BW
Mr. A. G. MARKS	VK3HVG
Mr. A. M. McGREGOR	VK4KX

SAM LANE

The death occurred on 20.12.79 of Sam Lane VK2LY after a short illness. Until taken ill, Sam was an employee of Tamworth Base Hospital, starting work there as a tradesman in early 1942. Soon after he joined the RAAF as a Wireless Air Gunner and served in Australia and overseas. On demobilisation he returned to his former employment, finally becoming Hospital Engineer and later Regional Engineer. To his wife Joan, son Alan and daughter Susan, also his mother, I am sure all amateurs extend their heartfelt sympathy in their great loss.

G. H. Simpson VK2WY

OBITUARY

RONALD HORNE

Ron Horne, of Maryborough, Victoria, suffered a fatal heart attack on 4th December, 1979. He was previously VK3AGR and VK4RR, and was a well known former member of No. 3 Squadron, RAAF. At the time of his demise he was 61 years of age.

From "Bill" Holland VK3XC.

HAROLD BOAST

With the passing of VK3AX (AR Oct.) the ranks of real old-timers thins further. Licensed before the issue of the VK prefix, Harold lived at Frankston as a youngster and was one of 30B's pioneers. This station opened its country relay at 3LX, Lubeck, in 1936 and Harold moved there shortly afterwards becoming Chief Technician — a post he held continuously until his retirement. Those who visited 3LX will recall what a shambles it used to be, the station and equipment positively gleaming, with the surrounding gardens and lawns neatly kept, a tribute to Harold's management and a great deal of personal effort. Harold and his XYL, Mairie, were deeply involved in district sporting and community affairs, tennis being their favourite sport, at which they both excelled. Harold was an A1 CW op, his main interest being 20m, a band from which he rarely strayed. With his trusty BC348, home brew Tx and 150 ft. near vertical antenna, his patient and methodical approach netted a formidable DXCC tally which I doubt he ever claimed. Harold and Mairie retired to Frankston in 1972, unfortunately illness overtook him in early 1979 and he passed away just a few weeks after the last time I spoke with him. Sadly I reflect to what extent my own links with the past in radio both amateur and professional have now been severed. Deepest sympathy is extended to his wife, Mairie, and son Roger and family.

Chas. Hawker VK3IB.

ANDREW CHARLES LORD

It is with deep regret we record the passing of Andrew Charles Lord (Andy) VK3BE after a long illness. Andy was first licensed on the 28th October, 1936, and was a very active ham on most bands. He served in the AIF as Lieutenant during World War 2. His occupation was with the Ballarat City Council as a rates collector officer, and later resigned this position to take his final position as Shire Secretary of the Banbury Shire. His health deteriorated earlier than anticipated. Andy will be missed not only by amateurs but people in many walks of life. Deepest sympathy is extended to his sister, Winifred, and Brother-in-Law, Bert, and other members of the family.

Stanley E. Widgery VK3BE.

VK2LY

It is with deep regret that I record the passing to Tom Scott VK2NPX on the 26th November 1979. Since serving with the Signal Division in New Guinea in WW II Tom maintained an interest in electronics. At the age of 58 he gained his Novice licence. He was not only an active operator but was a person who was committed to helping others obtain their Amateur Licences. He was a tireless worker for YRS Education Service personally packing and despatching over a thousand Novice Study Kits. He was an outstanding example of a person who put back into the Amateur Radio something in return for the fulfilment he gained from it. His efforts and his warm and generous personality will be sadly missed by all those associated with him.

Dave Wilson VK2ZCA/NMW

TOM SCOTT

ARNOLD GILBERT MARKS

VK3NVG

It is with deep regret that I inform you of the passing of a great friend in Gil Marks who passed away on December 24th with microphone in hand.

Gil spent all his life in radio and TV servicing. He was a radar operator in the RAAF during World War 2. He operated a business for many years in Portlaid and shifted to Geelong where he formed the Geelong Radio Club. He was extremely popular with all in the ham and highly respected by all for his electronics knowledge and friendly秉性.

He will be sadly missed and I wish to extend my thanks to his wife, daughter and son on behalf of all his friends for their deepest sympathy. The last entry in his log book was: "Jack said he has not received his results as yet". (I received the result on Dec. 27th — VK3VNO).

John E. C. (Jack) Heater

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NOW COMBINE AMATEUR RADIO AND COMPUTERS WITH A SOUTH WEST TECHNICAL PRODUCTS COMPUTER FROM GFS

We have a system to suit you, from hobby level all the way up to a business level system with 2.4 Mega-Byte of on-line disk memory. Also available is a comprehensive range of software packages including many that are orientated to amateur radio. Write or call us for full details of SWTPC's products.



GFS FOR RECEIVERS

STANDARD C-6500.....\$359.

HF Wadley Loop Communications Receiver.

Manufactured by Marantz Japan the C-6500 is a state-of-the-art HF receiver covering 0.3-30 MHz in 30 + 2 MHz band segments. Its sensitivity is extremely high at 0.5µV and selectivity is 4 KHz on SSB and 7 KHz on AM.



J.I.L. SX-100 16 CHANNELS VHF/UHF SCANNING RECEIVER.....Price \$407.

Still the best value in Programmable Scanners, the SX-100 covers the 6,2 and 70 cms Amateur Bands plus over 32,000 other frequencies including Channel O and Channel 3 SA TV Channels.

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SEE REVIEW ETI NOV. '79

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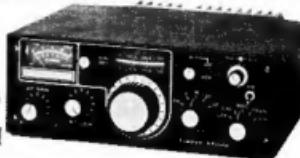
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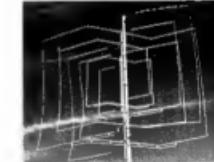
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